



FRIDAY, APRIL 11, 1879.

## Contributions.

## Improved Method of Casting Chilled Car-Wheels.

Office of the Baltimore Car-Wheel Company, BALTIMORE, Md., March 18, 1879.

TO THE EDITOR OF THE RAILROAD GAZETTE:

While the advantages of chilled cast-iron wheels for car and engine service, their comparatively low first cost, their simple form, homogeneous and consequent non-liability to break under changing temperature, are now generally admitted, one very forcible objection urged against them is the lack of uniformity in their durability. Although some wheels make a very high mileage, others manufactured at the same time, of same pattern and iron, fail early, and thus largely reduce the average mileage. In examining into the causes of this, our attention is drawn to the fact that about 20 per cent. of the car-wheels and from 30 to 40 per cent. of the engine-wheels which fail are condemned for what are known as "tread defects" or "chill failings," such as becoming "comby," developing "seams" and "shelling out." Further careful observation reveals the fact that the "comby" tread is caused by scoria or other impurities, which, entering the mold with the iron, float against the chill and become fixed in the tread. The "seams" or "cold cracks" are caused by a check in the flow of the metal into the mold while the large surface of the plate is filling. They generally occur at a point opposite where the plate joins the tread, and are frequently caused, in a measure, by the fluid metal having been allowed to become comparatively cool and sluggish. The "spotting" or "shelling out" is caused by what are known as "cold shot." As wheels are ordinarily cast, the metal poured directly from the ladle into the mold fills up the hub part to the line where it flows into the brackets, and then passes in driplets by one bracket after another to the chill. The metal thus reaches the chill in several streams of different temperature, and some of it, as it strikes the cold iron, chills into "cold shot," which become fixed in the tread without welding or thoroughly amalgamating with the surrounding metal. Of course the most highly chilling irons are the most liable to form "cold shot," and thus it happens that this defect is found most frequently in the wheels which have the deepest chill and which, therefore, might otherwise have given the highest mileage. Of wheels chilled sufficiently to run 50,000 miles in ordinary service, probably not more than ten per cent. are free from latent tread defects.

Frequently they are never discovered, as the nature of the service has much to do with their development. As an instance, upon one road which has an excellent road-bed, and track always kept in first-class order, out of many hundreds of wheels made at different times, extending over several years, not one has failed from the above cause, the mileage running as high as 140,000 miles in rapid and heavy service. At the same time, upon other roads, wheels of identically the same manufacture in every respect have "spotted out" after making a few thousand miles. This may account for the difference in the percentage of wheels which fail from these causes in car and in engine service. The large percentage of such failures, however, and the fact that the most highly chilled wheels appear to be the most liable to them, show the importance of any device by which they can be overcome.

We now offer a new process of casting chilled wheels, with this object in view. The device is as follows:

Referring to the accompanying illustration, fig. 1, which represents a section of a wheel-mold, it will be seen that the hub core *A* is formed with a concave top, *B*, while the core seat *C C* is of convex shape, the centre part being

lower than the perimeter of the top of the core. Figs. 3 and 4 represent a side elevation and plan of the core *A*. There is a space between, which is formed by a core print in the pattern. This space connects the receiving chamber *E* above with the mold by passage ways *D D*, formed in the side of the top of the core. The combined area of these passage-ways is less than that of the conduit, *F*, from the receiving chamber. This simple device skims the molten metal of all impurities which rise and are retained in the receiving chamber. It also regulates the pressure and distribution of the metal within the mold. The metal, upon entering the mold, first flows to the lower hub part at *H H*, whence it is at once conveyed by the sprue-ways, *G G*, to the lower rim part at *J J*. In passing into these sprue-ways it is again skimmed at their mouth. The rim of the wheel thus fills as rapidly as the hub, and the metal (not being allowed, as in ordinary practice, to cool in passing over the plates and through the brackets) reaches the chill at a very high but uniform temperature. The tread part of the wheel fills so rapidly, and with such hot and pure metal, that "cold shot" cannot form, and, even should they

in the flow of metal and in the pressure within the mold, and prevents all impurities from entering. The "sprue-ways," after skimming the metal a second time, convey the hottest and purest metal directly to the chill at a uniform temperature.

The arrangement of the brackets, while giving greater strength of form, makes it impossible for any metal to reach the chill except through the "sprue-ways," until the rim of the wheel has been filled to a point beyond the line where in service the tread will intersect the rail. By these means the following results are obtained: *Round* wheels free from tread defects, from strain in the plates and checking in the brackets; a deeper chill in the tread, with softer plates and hub than have been made heretofore; and greater regularity—in fact, almost perfect uniformity in the depth of the chill, immunity from chill cracks, and consequent ability to pour the iron at a very much higher temperature than has been possible heretofore.

I trust that our new system, as an effort which can hardly fail to increase very largely the average mileage of chilled wheels, may interest you and your readers sufficiently to justify this trespass upon your columns.

W. S. G. BAKER.

## The Valves of the Mogul that Competed with the Springfield Engine.

PHILADELPHIA, April 7, 1879.  
TO THE EDITOR OF THE RAILROAD GAZETTE:

Having read with much interest the several correspondents of your paper in regard to what is known as the "Springfield locomotive" and its trials with the "Mogul," etc., etc., now what I wish to call your attention to is a statement by "Springfield" in your paper of the 28th ult., saying that the valve in the "Mogul" with  $\frac{1}{16}$ -in. inside lap was just as the builder of the said engine made it. Now that is a decided mistake, and I hope it will be corrected; for it is surely hard enough for the builders to father their own "abortion," and leave others to do the same. Now that valve with the  $\frac{1}{16}$ -in. inside lap was "conceived and brought forth" by the "powers that be" of the Boston & Albany Railroad. I know whereof I speak. Hoping to see fair play in all things, I am,

Yours very truly,  
H. FRANCIS.

## Is Friction Independent of Velocity?

TO THE EDITOR OF THE RAILROAD GAZETTE:

Mr. William Loughridge, in your issue of 4th inst., says: "I unhesitatingly give it as my opinion that Mr. Westinghouse and Capt. Galton are entirely mistaken when they assert that friction varies with different velocities, as set forth in your editorial." In support of his opinion he refers to Bartlett's "Elements of Natural Philosophy" and Morin's experiments.

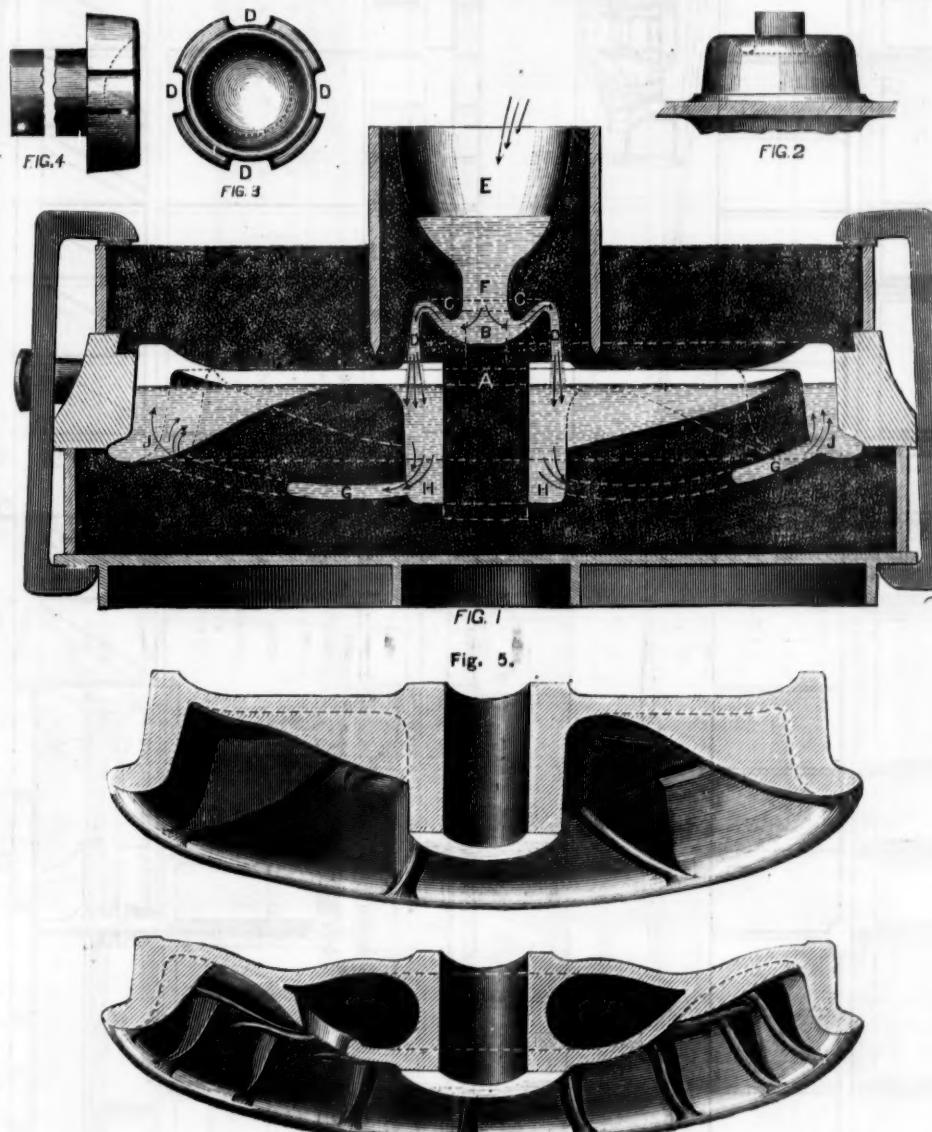
He is probably not aware of the recent experiments of Prof. R. H. Thurston, of the Stevens Institute of Technology, which confirm the conclusions of Mr. Westinghouse and Captain Galton, and prove the error of the conclusions drawn from Morin's experiments which are taught in all the text-books. I refer to Professor Thurston's papers on the Co-efficients of Friction, read before the American Association for Advancement of Science, at St. Louis, August, 1878, and before the American Institute of Mining Engineers, at Lake George, October, 1878. In the latter paper, as published in the *Journal of the Franklin Institute* for November, the following is given as one of his conclusions:

"The resistance due to friction varies with velocity, decreasing with increasing velocity, rapidly with very low speeds, as from 1 to 10 feet per second, and slowly as higher speeds are reached, until the law changes, and increase, at ordinary temperatures, takes place at a very low rate throughout the whole range of usual velocities of rubbing in machinery. The value may be taken for use in machine design and mill-work, and at a pressure of 200 pounds per inch, as  $f = 0.0015$

 $\sqrt{V}$ .

W. M. KENT.

PITTSBURGH, Pa., April 5, 1879.



## NEW PROCESS FOR CASTING CAR WHEELS:

Designed and patented by Mr. W. S. G. Baker, President Baltimore Car Wheel Company.

form, they would be carried by the stream of metal to a point in the tread beyond the rail line. The uniformity in the temperature of the fluid metal as it reaches the chill causes the chill to expand equally, preserving its round form, and securing almost perfect roundness in the wheel. It also prevents "chill-cracking." Wheels can be poured thus in from five to ten seconds with iron as taken from the cupola without a "chill-crack."

Fig. 5 represents a sectional view of a single-plate wheel, and fig. 6 one of double-plate or "Washburn" wheel. It will be observed that every alternate rib is connected with the rim of the wheel, and "runs off to nothing" near the hub. The ribs between these are attached to the hub, and diminish in width toward the rim.

This pattern of wheel, either single or double plate, is so formed that no metal can reach the chill by way of the plates or brackets before the rim part of the wheel is full to a point beyond the rail intersection. The brackets are so placed that one-half of them are filled through the "sprue-ways" by way of the rim and brace the rim to the plate, and the other half are filled from the hub and brace the plate to the hub. The plate is by this plan of brackets braced more securely than could be done in any other way with the same weight of metal.

To sum up, the new form of head-gate secures uniformity

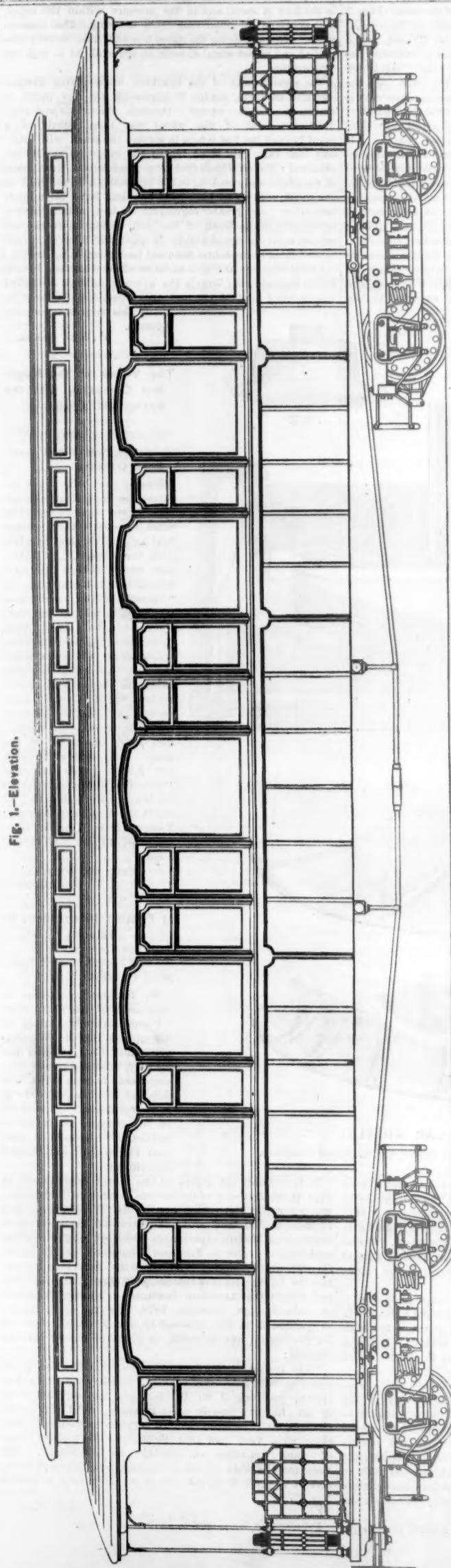
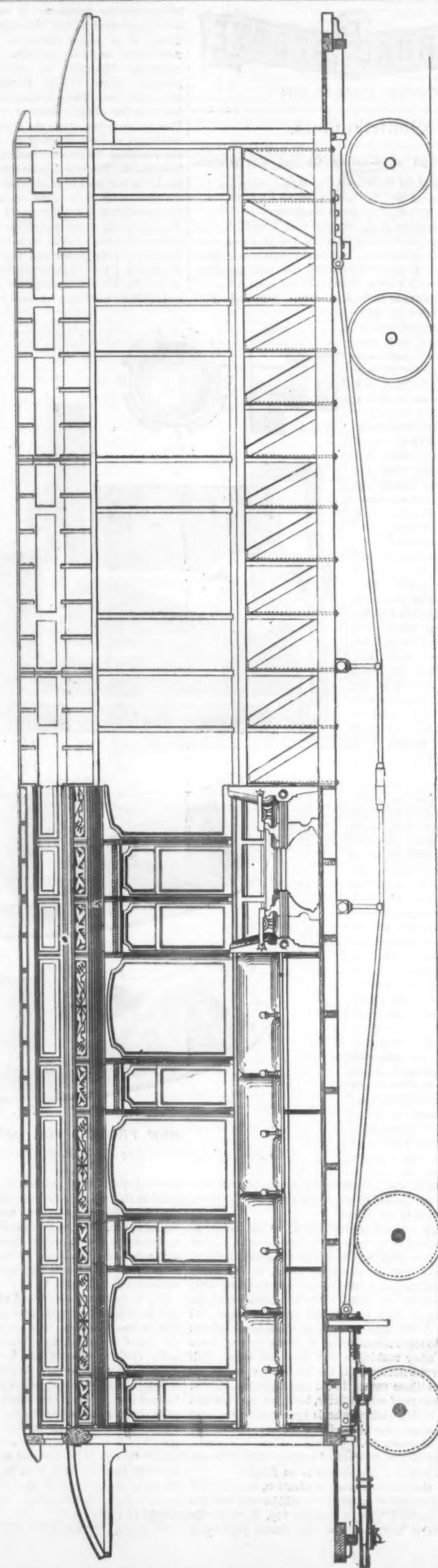


Fig. 1.—Elevation.



Longitudinal Section.  
Fig. 2.  
PASSENGER CAR FOR THE METROPOLITAN ELEVATED RAILWAY OF NEW YORK.

Built at the Pullman Palace Car Company's Shop, Detroit, Mich.

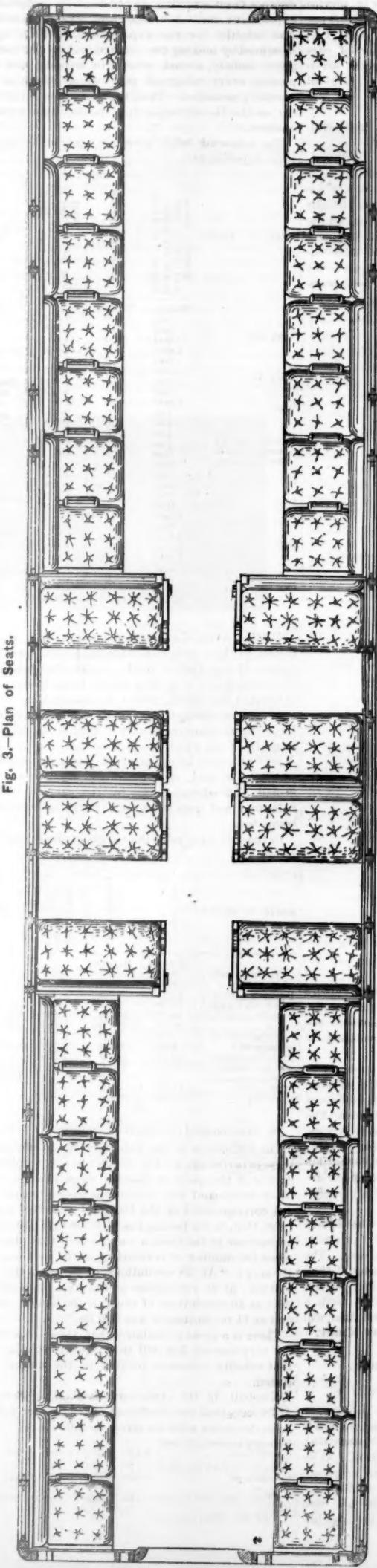


Fig. 3.—Plan of Seats.

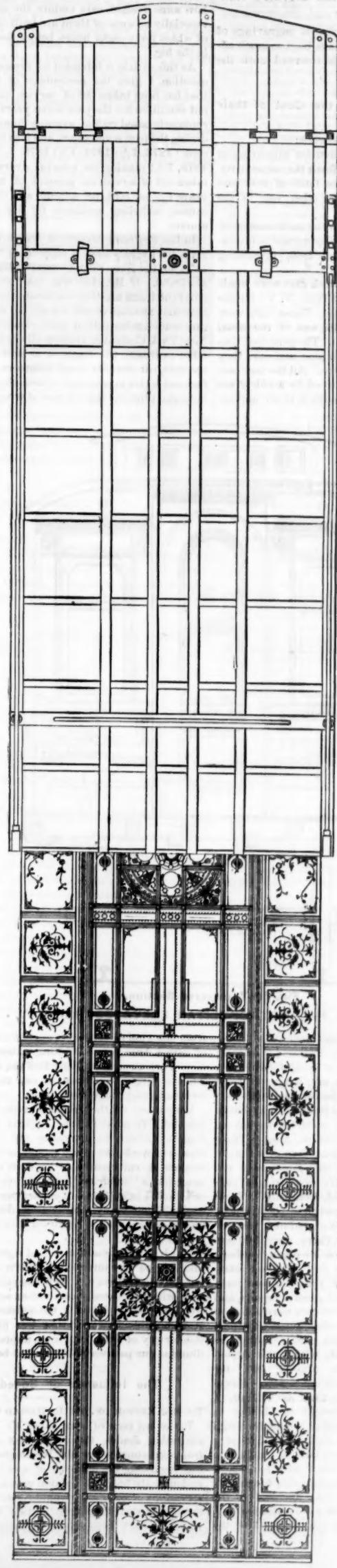


FIG. 4.  
Inverted Plan Showing Ceiling.  
Plan Showing Floor Framing.

**PASSENGER CAR FOR THE METROPOLITAN ELEVATED RAILWAY OF NEW YORK.**

*Built at the Pullman Palace Car Company's Shop, Detroit, Mich.*

**Passenger Car for the Metropolitan Elevated Railroad Company.**

We give this week the first of a series of engravings of these admirably-designed cars, which have been so much admired in New York. The description is reserved until the whole series of engravings is published.

**The Life of Wooden Cars and the Cost of their Maintenance.**

**TO THE EDITOR OF THE RAILROAD GAZETTE:**

I have read with much interest the articles appearing in your paper from time to time setting forth the superiority of cars built entirely of iron over those built of iron and wood, and have been waiting to see the other side of the question presented by some one.

As the writer has had no experience in the maintenance of cars built principally of iron, I will confine myself to my experience with cars built of wood and iron, presuming nothing.

In the year 1856 fifty box and fifty stock cars were made by the then firm of Eaton & Gilbert, of Troy, N. Y., for the Michigan Southern Railroad Company. These cars were 30 ft. long by 8 ft. 6 in. wide at the sills, and of the usual height, weighing about 18,000 lbs. each. The principal timbers in the bottom frame were Southern pine and oak; they were considered heavy cars at that time. All the box cars except those that have since been destroyed by accident are running now and still in very good condition to all appear-

contents of that one car. It surprises me sometimes to see how some freight cars endure the usage that they receive, especially as some of them are built of material some portion of which forty-eight hours before the car was finished was in the log.

As this article is intended to present but one side of the question, I give the percentage of the freight equipment that has been taken out of service on account of its worn-out condition for the past seven years on this line. This percentage is based on the average number of cars in service during the past seven years, and is as follows: In 1872, 2½ per cent.; 1873, 1½; 1874, 1½; 1875, 1½; 1876, 1½; 1877, 1½; 1878, 1½; making the general average percentage of cars taken out of service on account of unfitness for the seven years 1½ per cent. per annum, and the destruction from all causes, including accidents by fire, etc., 2½ per cent. per annum.

In the *Railroad Gazette* of March 7, 1879, Mr. A. F. Hill, gives the average cost of repairs per freight car for the year 1878, on the New York Central & Hudson River Railroad, at \$78.69. If Mr. Hill will take the trouble to ascertain what the items are that constitute the \$78.69, he would see that that amount would not all be saved were the freight cars made exclusively of iron. I have no doubt that on the New York Central & Hudson River Railroad, and on many other railroads, the wages of at least one hundred men—inspectors, car cleaners, lamp trimmers, men who attend to the fuel and water in passenger trains, etc.—as well as the expense links and pins, the time of men at wrecks, changing of cars for

erty of acquainting him with some other facts concerning the same subject.

Mr. Couche, in his valuable work,\* says that the influence of speed on the co-efficient of friction was ascertained in 1851 by Mr. J. Poirée, by the following experiments:

The first series of experiments was made with a ballast car, on which the wheels were prevented from revolving by being wedged. Between this and the motor was placed a dynamometer, incased in a large box, to prevent the air resistance from exerting any perceptible influence upon the experiment car. A straight and level portion of the road was selected for the experiments, and the speeds were measured by making two point marks on the indicated diagram, namely, a mark every five seconds, and another on passing every telegraph post, whose distances have been carefully measured. Thus, the power required to slide the car, as also the corresponding speeds, were known at every moment.

The following table gives an abstract of the results of these experiments:

STATE OF RAILS.	Length within which the speed and traction were constant...	Speed per second	Ratio of traction to weight, or co-efficient of friction...	REMARKS.	
				Meters.	Meters.
Very dry . . . .	500	4.6	1.4-8	Car springs free.	
	800	7.8	1.5-6		
	300	10.0	1.6		
	1,600	14.3	1.6-9		
Very dry . . . .	300	7.9	1.4	Vertical oscillations of the car body very perceptible.	
	300	13.0	1.4-5		
	1,000	18.0	1.4-9		
	400	22.0	1.5-3		
Wet . . . .	1,000	8.8	1.9	Later experiments.	
	750	20.8	1.12		
	400	6.0	1.4-8		
	400	8.0	1.5-3		
Dry, but having been wet in the morning . . . .	450	9.0	1.5-5	Springs rigid.	
	500	12.2	1.6		
	700	20.2	1.7-3		
	500	9.0	1.5-9		
Dry . . . .	300	7.25	1.4-8	Springs free.	
	850	10.8	1.5-6		
	950	15.7	1.6-3		
	1,300	20.0	1.7-3		
Dry . . . .	800	8.8	1.6		
	3,000	15.15	1.7-3		
	1,200	20.0	1.8		
	1,200	22.0	1.9		
Dry . . . .	450	5.0	1.5-8		
	700	9.0	1.6-3		
	450	16.0	1.7-3		
	3,300	19.15	1.8-4		

Another series of experiments was made by the same gentleman in 1856, their object having been to ascertain the efficiency of the Cachot brake, called the "skating brake." This consisted of iron shoes which, being thrown on the rails in front of the wheels, caused the wheels to mount on them, transforming instantaneously a rolling into a sliding car. Experiments were made with a freight car, hauled by a locomotive, from which it could be disconnected at a signal. A uniform speed being attained and ascertained, the brake was applied and, simultaneously, the locomotive disconnected. The distance run by the car was then carefully measured, and from it the value of the co-efficient of friction computed.

In the following table the results of these experiments are given:

STATE OF RAILS.	Speed per second...	Distance run until stop...	Co-efficient of friction calculated...	REMARKS.	
				Meters.	Meters.
(Experiments of May 21.)	6.66	15.0	1.6-7		
	8.69	26.0	1.6-9		
Damp weather, but the rails sufficiently dry . . . .	11.13	47.5	1.7-7	Car descends from the skates and rolls a short time.	
	14.28	94.0	1.9-2		
	10.23	182.0	1.9-9		
	22.22	230.0	1.9-3		
(Experiments of May 24.)	4.76	6.0	1.7-1	Doubtful.	
	8.33	25.0	1.7-3		
Rails beginning to get damp . . . .	16.66	137.0	1.9-9		
	20.83	230.0	1.10-6		
(Experiments of May 27.)	7.14	14.0	1.5-4	Great wind from the front	
	11.76	51.0	1.7-2		
Rails dry . . . .	25.00	272.0	1.8-5		

The experimental car weighed 7,960 kilog. (17,512 lbs.).

The differences in the values of the co-efficient found in these experiments are too distinct to leave doubtful the influence of the speed on friction, even if some errors in the observations and the calculations were admitted.

A correspondent of the *Railroad Gazette* expresses surprise that, in his testing machine for axle journals, he found an increase in the tension on the belt that drove the axle when the number of revolutions of the axle was decreasing. He says: "At 28 revolutions of the axle the tension was 110 lbs.; at 20 revolutions of the axle the tension was 120 lbs.; at 16 revolutions of the axle the tension was 160 lbs.; and at 11 revolutions it was 220 lbs."

There is a great probability that these experiments were not very correct, but still they are convincing of the fact that velocity influences friction in the manner as already stated.

Kimball, in the *American Journal of Science*, March, 1878, says that the co-efficient of friction for lubricated surfaces decreases with the speed, as follows:

Velocity in feet per inch.	1	3	5	7	10	15
Co-efficient . . . .	0.150	0.122	0.104	0.093	0.079	0.066
Velocity in feet per inch.	20	30	40	60	80	100

Co-efficient . . . . 0.058 0.054 0.053 0.052 0.051 0.050

\* Voie, Matériel Roulant, etc. Tome II, 2e Fascicule, page 268 to 271.

Oct. 31, 1874, page 421.

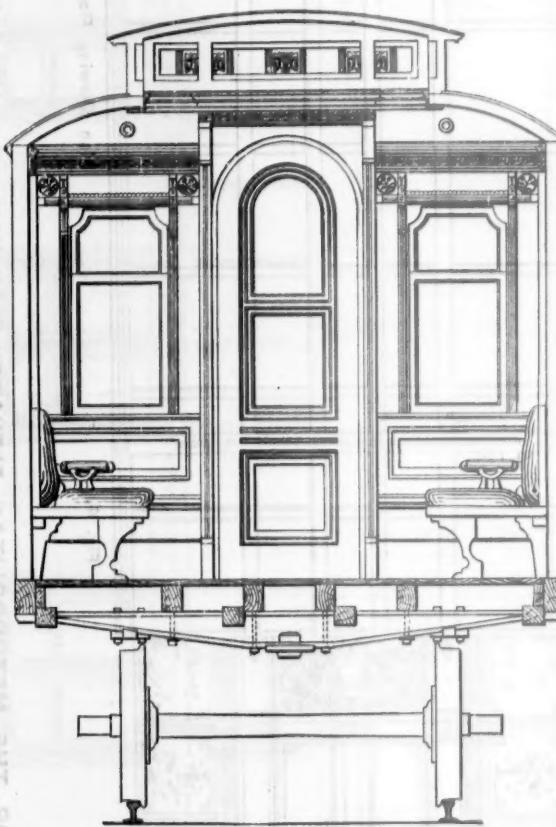


Fig. 5.—Transverse Section.

CAR FOR THE METROPOLITAN ELEVATED RAILWAY.

ances; the roofs have been several times renewed. In October, 1860, the Michigan Southern Railroad Company commenced building one hundred box freight cars; these were all finished during the year. In my judgment, from observation, these cars will be good for several years' service. Under seventy of these cars, and those built by Eaton & Gilbert, were put what are called wood trucks, having over the boxes half elliptic springs 33 in. long. These trucks are about as good as the car bodies. Barney & Smith, of Dayton, Ohio, in 1862, and in the same year the Toledo Car Company, each made fifty box freight cars for the Michigan Southern Railroad Company. These cars have all been through the shop, had new roofs, trucks and draw-bars put in good condition and painted, and are apparently good for several years. There were 300 box freight cars, built for the Lake Shore & Michigan Southern Railway in 1869, 200 of which were Red Line box cars. These cars went through the shop last year, had new roofs put on them; draw-bars and trucks had general repairs, and the cars were painted. The other 100 cars were common box. These are now undergoing similar repairs to those than before mentioned. These are light cars, weighing less 18,000 lbs. These cars are good, with little expenditure on them except for wheels, brasses, etc., for ten years. They are loaded indiscriminately, carrying 14 to 15 and sometimes 17 tons as a load. I have never known but two box freight car bodies to break down under the load. The breaking is done by rough usage principally. Very recently I had knowledge of a stock car having been loaded with green lath in bundles up to the roof and all the interstices filled with loose lath. After the car had proceeded about ninety miles toward its destination, the car inspectors noticed that the bands of the springs were together. This indicated an overloaded car, and two other cars were loaded each with a third of the

from one kind of service to another, are charged to repairs of cars. Any person visiting extensive repair shops, the New York Central at East Buffalo, for instance, would see what a large proportion of car repairs is occasioned by switching and rough usage.

Very many of the published reports have a tendency to mislead. To make railroad reports of more value as criteria by which to determine the cost of doing different classes of work, etc., they should be further subdivided. The account of car repairs, as kept on many railroads, is very much like a "sundries" account: every charge that pertains or attaches in any way to car service is charged to that account. Very many thousands of dollars are expended annually and charged to repairs of cars that are entirely foreign to that account.

I wish to put myself on record right here that what I have said is in no way intended to obstruct the wheels of progress, but, on the contrary, I welcome every improvement. The time will undoubtedly come when some other material than wood will be employed in the construction of railroads cars. It is possible, however, that this article may call forth a slender ray of light from some unpretending mind that will illuminate our pathway. So mote it be. JOHN KIRBY.

The Influence of Speed on Friction.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In the last issue of your paper Mr. Loughridge contests, or altogether denies, the correctness of the deduction made from experiments by Mr. Westinghouse and Captain Galton, regarding the influence of speed on the friction. As he undoubtedly bases his opinion on some of his own or on observations of others, he would render a service to those interested in this subject, by stating what facts he has with which to back this opinion. Meantime, I will take the lib-

Thurston, in an article on friction and lubrication of journals, published in the *Journal of the Franklin Institute*, November, 1878, gives results of experiments made by him, on lubricated journals, where the temperatures, the pressures and the velocities were noted. The following is an extract from Table B of the said article:

For 200 lbs. pressure per square inch, and the temperature of 150° Fahr.:

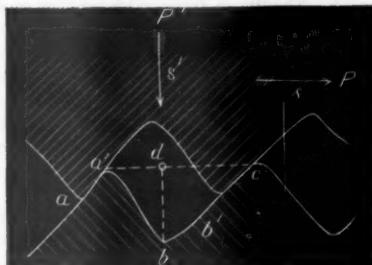
Velocity in ft. per min. 30 100 250 500 1,200

Co-efficient of friction. 0.0500 0.0140 0.0047 0.0028 0.0053

Standard sperm oil was used as lubricant, and the journal was new and of steel. The decrease of the co-efficient of friction with the increased velocity also takes place at other temperatures and for other pressures, as shown in the said table, but the effect of the changes is not the same. In the conclusions, in his article, Professor Thurston says, regarding the velocity:

"The resistance due to friction varies with velocity, decreasing with increasing velocity, rapidly at very low speeds, as from 1 to 10 ft. per second, and slowly as higher speeds are reached, until the law changes, and increase, at ordinary temperatures, takes place, and at a very low rate throughout the whole range of usual velocities of rubbing in machinery."

Let us now see whether the supposition that the friction decreases if the speed increases seems, so to say, so unnatural that we cannot believe it to be true. What is friction? Friction is mechanical work, because it requires a definite force to move a body which is in contact with another, and because it causes a perceptible wear of the surfaces in contact. The manner in which this work is accomplished can be explained only by the fact that the surfaces in contact are not perfectly smooth, but irregular, although this irregularity is not distinctly visible to the naked eye. Should we examine these surfaces under a sufficiently strong microscope, we would find them somewhat as represented in the accompanying cut. Let us now examine what happens if we



move the upper body in the direction of the dart  $s$ . The point  $a$  of the upper surface would be mounting the incline, formed by the corresponding portion of the lower body, until it reached its summit at  $a'$ ; from this moment it would begin to descend on the next incline, from  $a'$  to  $b$ , if the force  $P$ , acting in the direction of the dart  $s$ , would leave it sufficient time for the accomplishment of this; in other words, if the distance  $a' b$  were traversed in an equal or longer time than would be required to traverse the distance  $d b$ , under the influence of a force  $P'$ , acting in the direction of the dart  $s'$ , the whole incline from  $b$  to  $c$  would have to be mounted next, causing a certain amount of resistance during the time the body traversed the distance  $d c$ . But if we increase the speed in the direction of the dart  $s$ , so that the body will require less time to traverse  $a' d$  than to traverse  $d b$ , in such case  $a'$  would not fall on  $b$ , but at some other point,  $b'$ , and then only the  $b' c$  portion of the incline would have to be mounted, presenting a smaller amount of resistance than in the former case. A simple diagram of the two velocities acting in the directions  $s$  and  $s'$  will give a resultant determining the point  $b'$ , which will be nearer to  $c$  the greater the ratio of  $s'$  to  $s$ . A single element of the whole surface has here been considered separately, which of course is not correct, as the whole surface moves together; but whether the irregularities of the surfaces are of such nature that all the elements present the same or a similar form, or they do not, still an action like that illustrated above very probably takes place. This theory is also in accordance with the accepted law of friction, namely, that it is proportional to the load.

The wear could be explained by the occasional crushing of the elements or molecules under the action of the two forces; which may happen either when a molecule of one of the bodies comes for the first time in contact with a molecule of the other body, or after it has been already attacked by others.

T. F. KRAJEWSKI.

#### The Cross-Over Rule.

##### TO THE EDITOR OF THE RAILROAD GAZETTE:

Owing to my absence from home, I was unable to reply before to the criticism by Mr. Bell on "The Cross-Over Track," which appeared in your paper of March 21.

I am pleased that it has been criticised. There are cross-over tracks put in from day to day, by trials and guesses, thereby causing waste of labor and material, and in consequence of which we see a great many roads having the second frog three or four feet from its correct place.

As Mr. Bell condemned the rule in the *Road-Master's Assistant*, I am surprised that he did not put forward one that would work in all cases.\*

The rule was intended as an approximation; sufficiently correct for all cases usually occurring in practice.

I have staked out three cross-over tracks, according to this rule, and they have given entire satisfaction; also, I have known it used for four years on an extensive road, and the cross-overs show no tight gauge; on the contrary, they are

\* Mr. Bell is preparing a rule which will probably appear soon.

laid to exact gauge, and the alignment is very good. In fact, no defect can be observed by the eye.

I infer that Mr. Bell never employed the rule, or saw it tested; if he had, he would not write about discrepancy in gauge, as the track between the frogs is, or ought to be, spiked to cross ties, and there is then no difficulty in putting it to exact gauge, or even having it half an inch wide. If there be any discrepancy, it will occur in the line with the frog.

I worked out a mathematical solution of this problem, which was printed about three years ago, but we preferred putting the approximate rule in the *Road-Master's Assistant*, so that it may be applied easily in practice.

Below I give the correct solution:

In fig. 2, suppose  $A B$  and  $C D$  represent the two parallel tracks, and  $E F G$  the cross-over track.

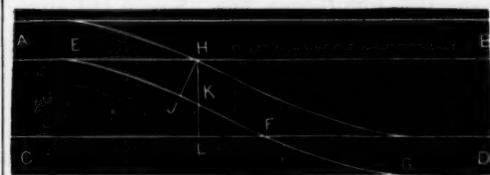


Fig. 2.

$H L$  is perpendicular to both the parallel tracks, drawn from the point of the first frog  $H$ , and  $H J$  is the gauge of the cross-over, and hence perpendicular to both rails of that track.  $L F$  is the distance required. Assuming the following for facility in calculation:

$s$  = space between the tracks =  $H L$ .

$g$  = gauge.

$i$  = frog angle =  $K F L$ .

As  $F L K$  is a right-angle triangle,

$$K L = \frac{g}{\tan i}, \text{ but } K L = s - H K.$$

In the triangle  $H J K$ , the angle at  $J$  is a right angle, and the angle at  $H$  is equal to the frog angle, as  $H J$  is perpendicular to the side of the frog in line with cross-over track, and  $H K$  is perpendicular to the side of the frog in line with the track  $A B$ .

Therefore,  $H K = \frac{g}{\cos i}$ , substituting in the above equation; we have

$$K L = s - \frac{g}{\cos i}$$

Therefore,

$$L F = \frac{1}{\tan i} \left( s - \frac{g}{\cos i} \right) = \frac{1}{\tan i} (s \cos i - g).$$

And finally

$$L F = \frac{1}{\sin i} (s \cos i - g).$$

This last formula gives a mathematical solution for all possible cases of a cross-over track, from straight parallel tracks, when the track between the two frogs is straight.

There is an error in the *Road-Master's Assistant*—page 172, fifth line: "The tabulated form on page 174" should read "tabulated form on page 38."

I consider Mr. Bell's objection to my using the expression "point of frog" is wholly unfounded, as I assumed the position of the first frog, determined by tabulated form, which gives position of point of frog from the head-block. Hence it is quite legitimate to take for granted that the position of the point of frog was understood.

I will not attempt to give a correct definition of the "mathematical point" of a frog, so that it may be fully understood by trackmen; it would be worse than "splitting hairs," for even in that fine piece of mechanism we do not arrive at the minuteness of a mathematical point.

All the tables I ever saw giving the position of frogs refer to the point of frog; in fact it is the only part of a frog the position of which is definite.

R. FRENCH.

YOUNGSTOWN, O., April 2, 1879.

#### National Regulation of Commerce.

Commerce among the states is becoming a wide field for Congressional legislation. Every session presents new aspects of the question: What laws may Congress pass to regulate commerce? Congress has legislated to secure humane treatment of animals on long railroad journeys; can it ordain the rights and comfort of passengers as well? It has restricted the passage of nitro-glycerine from one state to another; can it do the same as to obscene books? Can it prescribe the charges of competing railroads? Can it define the just secrecy and proper disclosure of telegrams from state to state; or authorize laying a pipe line to run petroleum from Pennsylvania oil-wells to New York city; or pass a trade-marks law; or enact a national factor's act, or a general commercial code? Or, must all such matters be left to state legislatures? These are a few only of the practical inquiries of the time. When the commercial power was conferred on Congress the states were few in number, limited in production, separated by difficult frontiers, and destitute of all the means of easy communication now in use. It is not easy to look back and discern how trivial an interest commerce among the states must have been in 1789. Now, for all purposes of wholesale distribution of products of industry, state lines have become practically obliterated. There is not one producer in a thousand, nor one wholesale dealer, who does not compete for the market of the whole region round about him, irrespective of state boundaries.

The course of decision in the Supreme Court has consistently and liberally sustained the expansion of this power, which the wants of the country have demanded. In a limited sense, commerce means traffic, acts of buying and selling; but the court early overstepped any such limitation. More than half a century ago, in the famous case of Gibbons against Ogden, transportation as well as traffic was held included. The state of New York had conferred on the inventors of the steam-boat an exclusive privilege of steam navigation in New York waters. The Supreme Court adjudged this an unconstitutional invasion of the power of Congress, which, they said, comprehends navigation within the limits

of every state, and extends to all descriptions of vessels, whether propelled by sails or by steam, and whether employed in carrying passengers or merchandise. Railroads were then unknown; but decisions in later years, carrying out the same line of thought, have distinctly recognized the power as extending to them, and to the telegraph, and have explained the doctrine of the court to be that the power is not confined to the instrumentalities known or in use when the Constitution was adopted, but keeps pace with the progress of the country, and attaches to all the new agencies as they are successively brought into use.

There have been decisions distinctly considering what is the beginning and where is the ending of an act of commerce among states. Ten years ago a little steamboat named the Daniel Ball, running back and forth on Grand River, between Grand Rapids and Grand Haven, was prosecuted for running without a United States license, and her owners claimed that, as the termini of her trips were both in Michigan, and she did not run out of the state, she was not subject to the commercial power of Congress, and need not have a license. She was a small affair, only 123 tons burden, and drawing two feet of water, and not big enough to sail upon the open waters of Lake Michigan. And Grand River is so short and insignificant a stream that another point made in the case was that she not plying on public navigable waters. But the court held that her confining her trips within the state did not take her out of commerce among the states, if she made a business of carrying goods destined for other states, or of bringing into Michigan goods which came from other states. Whenever a commodity has begun to move as an article of trade from one state to another, commerce in that commodity between the states has commenced. The fact that different agencies are employed in transporting it, some acting entirely in one state, others through two or more, does not matter; to the extent in which each agency cooperates, it is subject to regulation by Congress. And with respect to the ending of a commercial transaction, the court have said in cases involving validity of state laws imposing license fees on sales of goods brought into the state, that the power of Congress cannot be stopped at the exterior boundary of a state, but may enter the interior, and is capable of authorizing the sale of the articles it introduces. Commerce is intercourse; one of its most ordinary ingredients is traffic: sale is as indispensable to commerce as is importation. Congress has power not only to authorize importation, but to authorize the importer to sell, and the state cannot, by exacting a license fee, restrict the sale.

The exercise of the power naturally divides into three branches—protection and improvement of channels and ways of commerce, civil regulation of its persons and their business customs and methods, and punishment of offenses; and the decisions recognize Congressional action in all these ways. Congress may take necessary measures over all the navigable waters of the United States which are accessible from a state other than the one in which they lie, to improve and fit them for general navigation by enlargement of channels, erection of light-houses, and the like, or by prohibiting or removing obstructions, such as bridges. It may excavate and enlarge the East River channel at Hell Gate, or ordain the downfall of the Brooklyn bridge, if necessary to secure navigation. Again, it may watch the management of commerce; it may, as it has, regulate the affairs of seamen, the inspection of steam vessels, the protection of passengers; it may assume superintendence of pilots, and undoubtedly may act upon similar matters pertaining to railroads. And, again, Congress may define and punish crimes which interfere with commerce. Wherever committed, acts which obstruct free intercommunication between the states may be made punishable under national laws. Thus, it appears that by the three-fold power of opening channels, prescribing methods, and punishing obstructors, Congress may promote all the forms and kinds of commercial communication between states, from the initial point of transportation to its very terminus.—*New York Times*, Feb. 27.

#### Questions for the Car Accountants' Convention.

The following circular has been issued by the committee appointed for that purpose:

NEW ORLEANS, La., March 14, 1879.

The undersigned committee, appointed at the convention of the Railway Car Accountants' Association, held in New York, April 26, 1878, to prepare a list of subjects for discussion at the meeting of said Association, to be held in Chicago, April 23, 1879, beg to submit the following:

- What are the advantages and benefits of the daily individual car reports, as compared with the clearing-house system, as regards correctness, economy and promptness in locating cars?
- What is the best method of making the daily reports in order to insure correctness, economy and promptitude?
- In what manner should the daily reports from foreign roads be entered upon the home record?
- Is it feasible to dispense with the foreign record and rely upon the daily reports in connection with a good junction record?
- What is the most expeditious and simple method of correcting errors that may be found in car numbers and mileage extensions, or omitted runs?
- What form of junction record book can be adopted that will show the car numbers in consecutive order for convenience and speedy reference?
- Is it essential or especially important that the equipment of roads practicing the daily individual system should be marked with the designating letter assigned to the respective roads?
- Should a uniform report to managers of monthly car movement and mileage be adopted, and if so, what is the best form for such report?
- Is it necessary that a foreign car should be returned to the owner at the point of receipt, when both time and mileage may be saved by returning it at a more convenient point?
- What is the best way to card cars delivered to connections in order to insure their return via route delivered, or to request their return by a different connection, if the latter is mutually advantageous?
- Is a system of demurrage for the unreasonable detention of cars on foreign roads desirable? If so, what should be the limit of time beyond which demurrage should be paid, and what should be the rate per diem allowed? (Delegates are requested to inform themselves as to the average daily mileage per car made by their equipment during the year 1878, and to come to the convention authorized to vote for the plan of demurrage suggested.)
- Should mileage be paid on cars belonging to private firms or corporations?
- Is the adoption of a per diem system of compensation for the use of cars desirable or feasible?

S. B. McCONNICO,  
Auditor C. St. L. & N. O. R. R.;  
H. C. SLEIGHT,  
Car Accountant St. L. V. & T. H. R. R.,  
A. W. DAVIES,  
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Committee.



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## EDITORIAL ANNOUNCEMENTS.

ADDRESSES.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed to the EDITOR RAILROAD GAZETTE.

ADVERTISEMENTS.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN OPINIONS, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

CONTRIBUTIONS.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

## GERMAN REGULATIONS FOR THE INTER-CHANGE OF CARS.

Before 1873 a great deal of complaint was made of abuses in the use of cars sent beyond the road of the company owning them. It was often very difficult to get them back, and they were usually gone a wholly unreasonable time. Some Western roads that were lightly equipped were accused of conducting a large part of their local business in foreign cars, for which they rendered no account, and paid no rent. Traffic was growing fast and cars were scarce, and, in spite of the high charge of 2 cents per mile for the use of cars (instead of the  $\frac{1}{4}$  cent now charged), companies were more anxious to use foreign cars than to increase their equipment sufficiently to meet all their own requirements.

With the heavier equipment of the roads at a later day and the less pressing traffic, complaints became less frequent, and the proposition often made in the days before 1873, to exact a charge per day instead of a mileage rate for the use of cars, was hardly heard. Now, however, it comes up again. At certain seasons the car stock is again insufficient to meet the current demands unless it is handled with the greatest promptness, and railroad managers are making special efforts to get the utmost possible amount of work out of their rolling stock, to do a larger traffic with the same number and in some cases with a smaller number of cars and engines. Now the proposition is again made to charge by the day instead of by the mile, in order that roads receiving foreign cars may have a pecuniary interest in sending them back as soon as possible. Other propositions contemplate a charge for holding cars beyond a certain specified time. Some of these will be debated at the meeting of the Car Accountants' Association in Chicago on the 23d inst.

Under these circumstances it will be interesting to examine the practice of other railroad systems. The greatest of all is that of the German Railroad Union, and it has had in operation for some twenty years an

elaborate code of regulations regulating the interchange of cars, as well as their inspection and repair when on foreign roads. So far as the payment for service is concerned, as will appear below, the German code requires a payment for both mileage and time, with certain arrangements which make it advantageous under all circumstances to return foreign cars as soon as possible, and make it exceedingly costly to keep them beyond what is fixed as a reasonable time.

We give below a general account of these regulations, so far as they affect time allowances and charges.

The roads to which these regulations apply are all those of Germany, the Roumanian system, and some Dutch, Belgian and Russian roads that have intimate connections with German lines. Special and exceptional regulations may be made, however, between any two or more connecting lines within the Union to govern their own interchanges.

The company owning the cars, as well as the connecting line, is bound to permit a freight car to run through with its load to the station to which its load is consigned, if such station is on a road in the Union, or on one outside of it with which the line owning the car interchanges through freight, if such car is loaded to one-half of its full capacity. But in exceptional cases the connecting road may transfer the freight at its own cost.

At destination the cars are to be unloaded promptly, and, if practicable, sent back loaded. Loads for stations on the home road must be preferred, and if there is no freight for those stations, then loads for stations beyond it, causing the cars to pass over it. In the absence of such loads, then loads may be taken for stations on the way to the home road, and preferably to those nearest to it.

Loaded cars may be sent back to the home road by a route different from that by which they came from it and to a different connecting station, when their loads are consigned to stations on or beyond or in the direction of the home road. If the station to which the back load is consigned is between the shipping station and the home road, then it must be on a line over part of which the road passed on its way from the home road. Thus, a Chicago & Northwestern car arriving in New York by way of the Michigan Central, the Canada Southern and the New York Central, might be loaded for any station on any of these roads, but not for one on the Canada Southern. If, in violation of this regulation, the car is loaded on the return journey for a station on another road, and in consequence thereof has to pass over a line which it did not run over when dispatched from the home road, the road to which it was diverted must pay the company owning the line over which the empty run is made the amount of car rent (time and mileage rent) which goes to the owner of the car, and an equal amount for hauling it empty. Thus if a Chicago & Northwestern car dispatched to New York with a load by the Lake Shore and New York Central should be sent back loaded by the New York Central and Canada Southern to Detroit, and then empty by the Michigan Central to Chicago, then the Canada Southern would have to pay the Michigan Central what would be due the Northwestern for the use of the car, between Detroit and Chicago, and an equal amount for hauling the car.

Any road may require that its cars engaged in a certain traffic must be returned to it at the station where it delivers them, or at certain other specified stations.

If there is no load for the cars at the station of the foreign road where it is received and unloaded, then it may be sent to any other station on the same road at which a load may be had, if thereby the time during which this road has a right to the car by the regulations is not exceeded by more than one day.

If the car is sent back empty, it must always be by the same route by which it came loaded. It may be taken out of the train to be loaded at any station on any road on the way, or to any station on a branch, if a delay of not more than one day is caused thereby.

No company may refuse to receive the cars of a connecting road, if they are in proper condition and accompanied by the necessary papers, such as way-bills, custom-house invoices, and the like.

The time during which roads are entitled to the use of foreign cars is composed of "running time" and "load time."

The running time is determined by the distance traversed by the cars, and is fixed as follows:

For 75 kilometers (46 miles)..... 1 day.  
For 75 to 225 kilometers (47 to 140 miles)..... 2 days.  
For every additional 140 miles..... 1 day more.

This would give for the New York Central from New York to Buffalo, 5 days; for the Great Western, from Buffalo to Detroit, 3 days; for the Michigan Central, from Detroit to Chicago, 4 days: if the latter

were 280 instead of 284 miles long, it would be allowed but three days.)

The "load time" is allowed for unloading or loading, or both, at the destination of the car, and amounts to two days. "Running time" and "load time" are computed separately for every railroad company for the runs in both directions.

By this it appears that if a foreign car sent from the West to New York by the route above named, and then returned from New York to Chicago, arrived at the latter place in 14 days from the time of its arrival in New York, the owner of the car would have no right to complain.

The term of use begins with the hour of receipt, and ends with the hour of delivery of the car.

If the car is taken to an intermediate station on its way back to be loaded or unloaded, two days are allowed if it is both unloaded and loaded, and one day if only loaded or unloaded—not both. If stopped at junctions to transfer part of its load or receive additions to it, a day is allowed for that.

Payment for the use of foreign cars is made generally in the nature of a car rent, and exceptionally as a sort of fine for keeping the car beyond the time allowed by the above regulations.

The car rent itself is composed of two parts—a mileage charge and a time rent. The mileage charge is in proportion to the distance run, the time rent in proportion to the number of days spent on the road which used the car. To fix this time, the hour of the transfer of the car from one road to the other must be reported in writing by the employés intrusted with its delivery and receipt. The hours from midnight to midnight are numbered continuously from 1 to 24 for this purpose, so that the number 23 means 11 o'clock at night.

The mileage charge is fixed, for freight cars, stock cars, and the like, at 1 pfennig per kilometre, which is equal to 0.39 cent per mile. The cars used have about the same capacity as ours (22,040 lbs.), though they have usually but four wheels.

The time rent for cars of the same kind is one mark, or 24.3 cents, for every 24 hours. But no time rent is required for one of the two days allowed for unloading and loading at the station to which the car was consigned by the home road.

On this basis, the payment for the use of a car from New York to Chicago by the above-named route, should it take the whole of the time allowed, would be:

Mileage (660 miles, at 0.39 cent)..... \$3.74

Time (14—1 days, at 24.3 cents)..... 3.16

Total..... \$6.90

—which is equivalent to 0.72 cent per mile. The rate actually charged now is almost exactly the same—0.75 cent. Should the car be returned in a week from the time of its arrival in New York, however, the amount of the payment for the use of it would be less by \$1.70, or nearly one quarter.

Should any road keep the car longer than the time allowed it by the preceding regulations, then it will have to pay two marks, or 48.6 cents, as a fine for every day of such delay, besides the regular time rent of 24.3 cents. Any road, therefore, that keeps the cars of other roads, either because it wishes to use them in local traffic, or from negligence, does so with a knowledge that they will cost it \$5.10 a week each.

If a road which has kept a foreign car longer than the time allowed can show that the delay was caused by the obstruction of the road by accident, by the interruption of the regular operation of the road, by a power beyond the company's control (as in war), by custom-house operations, by the refusal of the connecting road to receive the car, or by the bad condition of the car itself, then it will be relieved of both the fine for delay and the time rent for the period of delay so caused.

Any use of a foreign car made by a company in contravention of these regulations (which would include the employment of a car in local traffic) renders it liable to a fine of 15 marks (\$3.64) per car for every day of such employment, and to make good any greater damages that may be shown to have resulted to the owner.

These are the regulations that were in force in 1873, and it is possible that there may have been some changes in them since that time. An examination of the proceedings of the last two conventions of the German Railroad Union, however, does not show any changes in these terms. It does show, however, some dissatisfaction with them. It was claimed that the time rent and charges for delays were so great as to cause the roads to hurry back cars empty after unloading them, when by a little delay loads might have been got for them. But it was not proposed to abolish the system, but only to reduce the charge per day, and that, if we remember right, only for the days of delay beyond the allowed time—which seems a very liberal allowance. The proposition was not adopted, how-

ever, and we may assume that the system has been approved as suiting the circumstances of the German and Austrian roads. It is not often that a system can be transplanted unchanged from one country to another, but this foreign system may well afford suggestions by which we may profit, if it shall be thought best to change our present system of charging for car service.

#### THE WINTER GRAIN MOVEMENT.

The winter of 1877-78 seemed altogether exceptional in the vast amount of grain marketed. We followed from week to week the quantities received and shipped at the great Northwestern markets and the receipts at the seaboard, and they were so very much greater than ever before—especially the latter—that it seemed altogether improbable that they would be equaled again soon. A great harvest last summer made it probable that the crop-year would show as heavy a movement; but then the fall movement, chiefly by water, was exceptionally heavy, and much greater stocks than the year before were accumulated at the seaboard and abroad before navigation closed, so that it seemed reasonable to expect a winter's business which, though large, might still fall considerably below that of the previous winter, and the movement in the earlier part of the season tended to confirm this expectation.

What the movement has been for this season so far is shown by the table below, in which is given the number of bushels of grain of all kinds received and shipped at the eight reporting Northwestern markets (St. Louis, Peoria, Chicago, Milwaukee, Duluth, Detroit, Toledo and Cleveland), and the receipts at the seven Atlantic ports (New York, Boston, Portland, Montreal, Philadelphia, Baltimore and New Orleans) for the four months from Dec. 1 to March 29 for each of the past six years :

Year.	Northwestern		Atlantic	
	Receipts.	Shipments.	Receipts.	Shipments.
1873-74	42,871,691	19,564,036	31,553,180	
1874-75	27,210,342	15,535,933	16,360,919	
1875-76	38,997,234	20,656,513	30,740,861	
1876-77	34,167,987	16,906,824	31,862,459	
1877-78	45,559,385	30,837,329	58,222,317	
1878-79	53,139,024	28,103,658	59,541,466	

Thus we see that the receipts at the Northwestern markets this season have been one-sixth larger than last year even, and nearly one-fourth greater than ever before; and though these markets shipped a little (8½ per cent.) less than last year, thus accumulating a larger stock on hand, the receipts at Atlantic ports have slightly exceeded (by 2½ per cent.) the enormous figures of last year, and have been *eighty-seven per cent.* greater than in any previous winter.

This is not caused solely by larger production and total marketing of grain. It is chiefly significant of a revolution in the conduct of grain business, which no longer depends upon the water rates for an outlet and so accumulates at lake ports during the winter, but goes forward to the seaboard for export freely all the time that the lakes and canals are closed, and more freely than it moves by rail at any other time in the year—all due to low winter rates. This will be seen by a comparison of the winter receipts with the total receipts of each year. The four winter months have been approximately, beginning with 1874, 21.4 per cent., 11.1, 18.2, 19.5, and (in 1878) 23.5 per cent. The first heavy winter movement was in 1873-74, stimulated by a combination of circumstances—a great foreign demand and very high prices at a time when there was an enormous surplus in this country, and the greatest need of money for a generation almost. That was truly an exceptional year, and the movement was heavy in spite of what would now be called high rail rates—more than twice the grain rates during the past winter.

Though the total shipments from the eight leading Northwestern markets for the four months have been less this year than last, their shipments in March have been very nearly as large this year, and larger than ever were made by rail in any one month before except in March of 1878. The course of the movement has been nearly parallel to that of the rates, and both are very like the course of rates and movement last year. The chief difference is that the greatest cuts in rates and the greatest shipments came about a month later this year; the average rates have thus been somewhat higher, and the aggregate shipments somewhat smaller. Last year, it may be remarked, lake navigation opened on the first of April; this year the railroads may have the traffic to themselves throughout April, and if they carry at the rate of the last week of March, they will exceed the record of any month last year, the shipments by rail from the eight markets then exceeding those of any previous week in the history of the business.

Again we note that these Northwestern markets—chiefly lake cities—are becoming less and less important as sources of winter supply to the seaboard.

The enormous Atlantic receipts doubtless come chiefly from the Northwest, but the quarter portion (in winter), and an increasing portion, is shipped direct, or at least without the intervention of any of these markets. The excess of the Atlantic ports' receipts over the Northwestern markets' shipments, and the proportion which the latter bears to the former, during the four months in each of the six years, have been:

Year.	Excess.	Proportion.	Year.	Excess.	Proportion.
1873-74	11,989,144	62.0	1876-77	14,865,635	53.3
1874-75	2,824,986	82.7	1877-78	27,384,488	53.0
1875-76	10,084,348	67.2	1878-79	31,347,803	47.3

Thus this year for the first time the winter receipts of the Atlantic ports have been more than twice as great as the shipments of the Northwestern lake and river markets. As might be expected, the tendency of through rail shipments is to eliminate the services rendered by these markets—to connect more directly the producer and the consumer.

These markets, however, have not only an immense business, but a rapidly growing one, as is shown by their receipts, and when navigation opens they will doubtless again become the chief sources of supply. They have never before accumulated such a stock, not even in the days when rail receipts were comparatively trifling. The excess of their receipts over their shipments has been 25,000,000 bushels this year against 15,000,000 last year and 23,300,000 in 1873-74.

Thus the movement of the season, taken altogether, has been unprecedented. The railroads were never, at any season of any year, so busily engaged in carrying grain. With fair rates for carrying the business would have yielded a substantial addition to the profits of all the railroads engaged in it. But, though the rates, as has been said, have been on the average a little higher than last year, scarcely any profit has been made on this enormous winter grain traffic except by the roads carrying to the Northwestern markets, and not by all of those. Probably more than one half of the 60,000,000 bushels delivered at Atlantic ports has been carried at rates that barely covered the cost, and did not always do that, and the margin of profit on the other half was very narrow. Roads delivering at Toledo and Cleveland have had to carry at similar rates. The best that can be said of a traffic that is unparalleled in bulk is that it has made a little better returns than last winter's business, and that is saying very little. The Northwestern railroads that gather the grain from the farmers' stations have, however, generally made some profit on this business, which is the chief traffic of some of them. They, however, have generally had to submit to some reduction in rates, the lower price of grain sometimes making this indispensable. This is shown by the fact that no great increase of earnings is shown by any of the Northwestern grain roads, some of which have had a great increase in grain traffic, for the increase in the total has been made in spite of a great decrease from the district northwest of Chicago that usually supplies most of the spring wheat, and this has had to be made up by gains on the roads further south.

The distribution of the grain receipts among the seven Atlantic ports, which has excited much interest since Philadelphia and Baltimore became serious competitors for the export business, is shown below for the four months ending March 29 of the past three years :

Receipts of Grain at Atlantic Ports, Dec. 1 to March 29:

	1878-79	1877-78	1876-77
	Bushels. P.C.	Bushels. P.C.	Bushels. P.C.
New York	24,095,280 40.4	24,593,274 42.2	9,969,671 31.0
Boston	5,707,637 9.6	4,330,271 7.5	4,160,078 13.0
Portland	820,791 1.4	1,200,860 2.1	579,860 1.8
Montreal	82,637 0.1	58,849 0.1	93,965 0.3
Philadelphia	16,715,850 18.0	10,599,880 18.2	5,696,050 17.8
Baltimore	13,580,400 22.8	12,068,600 20.7	5,955,864 20.9
New Orleans	4,589,662 7.7	5,361,983 9.2	1,995,862 6.2

Total... 59,502,206 100.0 58,222,717 100.0 32,091,929 100.0

The changes since last year are all small, and at all the large markets the percentage of receipts this year is a mean between the percentages of the two previous years. New York has a little smaller proportion than last year, but a much larger one than in 1876-77; Baltimore a little larger proportion than last year, but a much smaller one than in the year previous. So with Philadelphia, so with Boston, so with New Orleans.

Putting Philadelphia and Baltimore together, and comparing with New York, we have the following percentages :

	1878-79.	1877-78.	1876-77.
New York	40.4	42.2	31.0
Philadelphia and Baltimore	40.8	38.9	47.7

The three cities... 81.2 81.1 78.7

The two southern cities, which together received one half more than New York in 1877, and one thirteenth less in 1878, have received one one-hundredth more this year.

Taking New York and Boston together and comparing with Philadelphia and Baltimore, we have :

	1878-79.	1877-78.	1876-77.
New York and Boston	50.0	49.7	44.0
Philadelphia and Baltimore	40.8	38.9	47.7

The four cities... 90.8 88.6 91.7

In the very last week of the nineteen for which these

figures are given, the proportion of New York was exceptionally small, indicating that the cutting of rates about the middle of the month and the large time contracts then made were by the lines to the southern cities more than by those to New York. But generally there have been, it appears, less artificial diversions of traffic than last year, when the feeders of the New York Central were accused of cutting rates and making contracts to a greater extent and some weeks earlier than the other lines. There has been a good deal of the same kind of work the past winter, but we do not know that one road has had much the advantage of the others in it, though there have been times when the Baltimore & Ohio is said to have gone out of the market on account of the inadequacy of the rates. Natural causes have worked against New York, the January blockade in the vicinity of Buffalo having reduced its January receipts probably as much as a million of bushels.

If New Orleans has any advantages in the way of cheapness to afford, this winter was an unusually favorable one for it. In the first place, a much larger proportion of the wheat than usual was grown pretty well to the south, nearer the Ohio and the lower Mississippi and further from the lakes and the northern railroads. In the next place, the prices of grain have been exceptionally low, under which circumstances the saving of a cent a bushel in freight has greater effect than when the demand is sharp and the prices high. New Orleans, however, has had not only a smaller proportion of the traffic than last year, but also a smaller amount—14 per cent. less. As yet it certainly has had very little effect on the grain trade.

#### New York Grain Receipts in the First Quarter.

The receipts of grain and flour at New York during the first quarter of the past five years, by different routes, have been as follows, in bushels, flour being reduced to grain :

Route:	1875.	1876.	1877.	1878.	1879.
N. Y. Central	5,715,505	6,654,772	9,843,478	14,077,613	12,055,350
Erie	3,074,618	4,001,452	3,970,406	6,196,191	7,012,761
Pennsylvania	2,500,897	1,781,277	2,040,340	3,685,169	5,002,392
Other roads	110,444	180,691	180,691	180,691	180,691
By water	807,518	1,447,039	1,176,965	1,045,607	785,591

Total... 18,085,506 14,306,978 16,567,341 25,253,032 20,016,206

The total receipts this year are 3 per cent. greater than for the corresponding three months last year, 150 per cent. more than in 1876, nearly 80 per cent. more than in 1875. There has been some change in the relative position of the several routes, which will be seen best by comparison of the percentages below :

	1875.	1876.	1877.	1878.	1879.
New York Central	43.7	46.6	36.4	55.8	46.3
Erie	30.4	28.7	29.1	24.3	27.0
Pennsylvania	10.1	12.3	22.7	14.2	21.5
Other roads	2.2	2.2	0.8	1.6	2.2
By water	4.6	10.2	11.0	4.1	3.0

Total... 100.0 100.0 100.0 100.0 100.0

The New York Central & Hudson River has led all the time, but there have been some fluctuations in the proportions received by it which deserve attention. Last year it was very far ahead, but this year it has carried a smaller proportion than in 1876 even, and, in amount, 2,000,000 bushels less than in the first quarter of 1878. An examination of the receipts by months shows that there was a decrease of 2,470,000 bushels in January alone. That month this year the road's business was very greatly limited by snow blockades. Its February receipts have been about the same as last year; its March receipts were 8 per cent. greater. In 1877 also grain receipts by this route were greatly limited by a snow blockade. They were then less than by either the Erie or the Pennsylvania, but recovered in February and March, just as they have done this year.

The Erie seems to have suffered much less from the January blockade. Its proportion of the whole was nearly as large as it has been since; but its February and March receipts were much the largest ever carried by it in a winter month, and a million and a quarter of bushels greater than in January. It may be said to have lost half as much as the New York Central by the blockade. The Pennsylvania was greatly favored by the blockade of the New York roads, and delivered much more at New York in January and February than ever before. It has not, like the other two roads, kept up in March its February business, and has especially a very much smaller proportion of the whole. In order to understand the variations from month to month, we give below the number of bushels and the percentage of the total received at New York by each route in each of the three months of 1879 :

	Bushels.	Per cent. of total.
January	4,192,787	5,393,891 41.2 42.4 53.4
February	2,751,078	2,751,078 24.5 27.8 27.6
March	1,554,498	1,554,498 27.0 23.6 15.6
Other roads	219,212	219,212 130,140 3.6 2.2 1.3
By water	171,726	171,726 306,003 214,862 2.8 4.0 2.1

Total... 6,138,356 9,892,817 9,085,122 100.0 100.0 100.0

Here we see that in March the New York Central recovered substantially the position which it occupied

in 1878, which is a much better one than it ever held in any previous year. It was kept from this in January by the snow blockade, and in February by enormous and wholly exceptional business of the Pennsylvania Railroad, which was in that month 110 per cent. greater than in 1878.

Going back to the second table (of percentages by each route for the quarter for five years), we find that the Erie, in spite of the January snows, takes a higher place than last year, but does not quite reach the rank of the three years previous to 1878; and the Pennsylvania has a higher place than in any other year except the still stormier one of 1878.

The winter grain movement has now assumed enormous proportions, and it is important to see whether the additions to the business are contributed more by the feeders of one line than by those of another. It was not safe to assume that a business of ten millions a month would be distributed in the same proportions as one of four millions a month. But so far as these figures show, it has been, pretty nearly. There are no changes since 1878 which indicate any great diversion of traffic from one route to another, or any considerable development of traffic on one line which the other lines do not share. If any, it has been an increase on the New York Central, which may have had an unnaturally large grain business last year, but certainly has had its traffic lessened (as has the Erie) this year by an accidental natural obstacle. But for that, it seems probable that about one-half of the New York grain and flour receipts during the last quarter would have been by the New York Central, and probably 28 or 29 per cent. by the Erie. Of course no one can say precisely which route has gained the most traffic by cutting rates. In the long run, there is very rarely any considerable change made by such methods, but in a single season a very great diversion may be caused.

There will be probably several more weeks before there are any considerable receipts by water at New York. The opening of the canal is not yet announced, and it is usually about two weeks after the opening before any considerable number of grain cargoes arrive.

#### Steel Rails from England.

The purchase of 12,000 tons of steel rails in England by Mr. Vanderbilt for the New York Central & Hudson River Railroad has naturally caused great surprise, as this one order is more than the total imports of rails into this country for two or three years past. And, though American steel rails are a little higher than they were a year ago, still they are lower than the cheapest foreign rails plus the duty of \$28 per ton, to say nothing of transportation, which, however, will cost next to nothing, as most vessels have to make the voyage to this country in ballast, the exports being several times as great as the imports in bulk.

It appears, however, that the purchase for the New York Central was made in England, not because the rails were cheaper, but because a guarantee was given of a much longer service than the American mills would offer and much greater also than the American rails hitherto used on this road afforded. Indeed, as nearly as we can learn (the price is not stated, but is reported to have been equivalent to about \$55 per ton in New York), a good deal more than the average present English price is to be paid for these rails. It must be borne in mind that steel rails are not all alike by any means, and that many produced of late years are not wearing nearly so well as the earlier rails. This is by no means an American peculiarity. Most of the complaints that we have seen were by Europeans of the product of their own works. But the rails first laid by the New York Central (in 1866), of Cammell's make, have down to this time required renewals of less than 1 per cent. of their number yearly, and are, nine-tenths of them, still in the track. Now in purchasing of the Cammells again, the road exacts a guarantee, first, that the rails shall last ten years absolutely, and second, that they shall be in every respect as good as those first laid, which have been in the track for nearly 13 years, and have considerable service in them yet.

Of course it does not follow that the American works cannot, or even that they do not, make rails that will answer these requirements; what caused the decision of the road seems to have been that they would not guarantee such service, and that the difference between the life of the American rails heretofore laid on this road and the life guaranteed for these English rails is worth several times as much as the difference in cost.

The New York Central has on parts of its line nearly as heavy a traffic as any road in the world. It is therefore in good position to test the wearing qualities of rails. Its experience has shown very different endurance in different lots. Among those laid earliest, some have had average renewals of 0.7 per cent. yearly, others of 16% per cent! Between the first and the last there is a greater difference than between the last and a tolerable iron rail.

On this purchase of rails, probably about \$300,000 will be paid to the English manufacturer, and \$396,000 into the United States Treasury for the duty. If, then, the American steel manufacturing interest loses something by it, the government will gain something.

It is not at all probable that there will be any considerable

further importations. If the American works cannot get the orders without giving similar guarantees, they will, doubtless, in course of time, give the required guarantees. Just now they are so full of work that they may not have found it worth their while to make a special lot of rails, especially as the making of such a lot would be construed as an acknowledgment that the ordinary production is not the best. And hitherto there has not been much encouragement to pay special attention to quality. When iron rails were bought, the buyers knew that there were very great differences in quality, and sometimes made specifications or exacted guarantees to secure a good quality. But to most buyers, until recently, steel rails were steel rails, and the works that bid half-a-dollar a ton the lowest got the order. We have heard of some very bad results from such purchases, and some of the largest users are now making specifications or requiring guarantees. These may not always be fixed wisely, but they are a good sign, and will doubtless have the tendency to compel greater attention to the quality of the rails turned out, and prevent a possible great depreciation in the old and present standard of Bessemer rails, such as took place long ago in the average of iron rails. So long as no discrimination is exercised by buyers, manufacturers will give their chief efforts to producing as cheaply as possible, with little regard to the quality of the product; but if buyers show themselves willing to pay for the qualities which insure durability, they will be pretty sure to get what they want, and the more general this disposition, the easier it will be to supply the demand, as it is easier always to provide for a general than a special demand.

#### Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

*Burlington & Missouri River in Nebraska.*—This company's *Republican Valley* line has been extended from Riverton, Neb., west to Bloomington, 18½ miles. Its *Nebraska* road is extended from Brownville, Neb., south to Nemaha City, 5 miles.

This is a total of 18½ miles of new railroad, making 317 miles reported thus far this year, against 242 miles for the same period in 1878, and 190 in 1877.

*THE ST. LOUIS & SOUTHEASTERN RAILWAY* is not to go wholly into the possession of the *Louisville & Nashville*. The latter has purchased only the interest of the consolidated mortgage in that part of the road south of the Ohio River—that is, in the old Evansville, Henderson & Nashville road, from the Ohio at Henderson, southward 135 miles, to the Louisville & Nashville at Edgefield Junction, 10 miles north of Nashville. Ahead of this consolidated mortgage (and intended to be retired by it) is a first mortgage of \$1,000,000 on 98 miles of this line in Kentucky. On the part in Tennessee (87 miles, with running rights over 10 miles of the Louisville & Nashville into Nashville) there is no mortgage except the consolidated, and at the foreclosure sale on the 9th inst. this was to be bought by the consolidated bondholders' committee for the account of the Louisville & Nashville Company, arrangements having been made to that effect. The Louisville & Nashville will then have to satisfy the first-mortgage holders of the Kentucky line in order to secure the line to Henderson. As their yearly interest amounts to only about \$700 per mile of road, it might be supposed that this debt could be assumed without inconvenience; but the reports show that this is the most profitless part of the road, its net earnings in the six years ending with 1878 having varied from \$7.18 to \$630 per mile of road, and averaging only \$291. With this record the Louisville & Nashville is not likely to be willing to guarantee the first-mortgage interest or pay anything like par for the bonds. But while these first-mortgage bondholders may insist on having their money on the road, the Louisville & Nashville will be able, with the absolute ownership of the Tennessee line, to say that it shall have no chance of profit from the through traffic to and from Nashville, and it is doubtless expected that the whole line to Henderson will go into its control, on some terms or other. The Receiver now holds it under the first mortgage, and the sale this week will transfer to the Louisville company only the line in Tennessee. On this the net result for six years has varied from a loss of \$208 to a profit of \$906 per mile of road worked, averaging a profit of \$444. But this section of road is too short to prevent permanently the securing of a Nashville outlet, if any considerable interest should require it. But for the fact that the lines south of Nashville belong to rivals of the Southeastern, it probably would not be long before a new line would be built thither if the Kentucky bondholders were not satisfied. But there is too little profit in the business to justify any considerable new construction.

It must not be assumed, however, that it is the purpose of the Louisville & Nashville to shut out the traffic that goes over the St. Louis & Southeastern to Nashville. On the contrary, the object professed is to give it an interest in and a certain control of that business, which will enable it to compete better with the Nashville, Chattanooga & St. Louis, which, if the plan is carried out, is likely to be considerably injured by it, as the Louisville & Nashville will then be able to and probably will send all freight coming from the North to Nashville consigned to the southeastern points as far north as Macon and Augusta by its own line through Decatur and Montgomery, leaving the Nashville & Chattanooga with no feeder at Nashville except its own line to the Mississippi.

With the Louisville & Nashville an active ally of the St. Louis & Southeastern, the latter north of the Ohio as well as south of it will be in a much improved position. Only a

very small part of the traffic originates south of the Ohio, and the earnings and profits of the line north of it are usually the greatest.

*THE BALTIMORE & OHIO* again declares a stock dividend on its main line, at the rate of 4 per cent.—the third half-yearly stock dividend of that amount, no cash having been paid since October, 1877, when 3 per cent. was paid. These dividends have added \$1,650,000, or nearly one-eighth, to the amount of the company's common stock. The company reports the dividend fully earned in every half-year, we believe; but the money has been applied to the reduction of the floating debt, which had become very burdensome, but must be disappearing very rapidly under the present circumstances, while the improved credit of the company enables it to carry the debt on better terms. This policy, which the Pennsylvania has pursued as well, has certainly been a wise—perhaps we might say that it has been an indispensable—one, for their floating debts at one time had become unwieldy and kept the companies in constant difficulties.

A very favorable statement of the net earnings of the main line of the Baltimore & Ohio for the last half-year (ending with March) is made in connection with the declaration of the dividend, an increase of nearly 25 per cent. being reported, and the net earnings of the whole system, after paying all expenses for maintenance and fixed charges, enabled the company to make a reduction of \$761,640 in its floating debt, while the par of the stock dividend is but \$568,300. It was hardly to be expected that there should be so large an increase in the net earnings. There was an immense through traffic both years during the winter half, but if the rates this year have been a little better from January to March, they were a good deal better the previous year from October to December, and, we should say, averaged best in 1877-78.

*THE ATLANTIC & GREAT WESTERN LEASE* seems sure to be made. Notwithstanding the great efforts made by Mr. McHenry and his party to organize an opposition to the trustees, by the last advice *not any* of the bonds deposited with the reconstruction trustees (\$48,000,000 out of a total of \$55,000,000) had been withdrawn, and the McHenry committee had received protests from but \$3,000,000, of which only one-half has ever been deposited with the trustees. But while it thus appears impossible for the proposed lease to be defeated, the active opposition makes it more difficult and costly to raise the money necessary to carry it out—that is, to dispose of the securities from the proceeds of which the Receiver's debts, etc., are to be paid.

Mr. C. E. Lewis, M. P., the Chairman of the reorganization trustees, is now in this country, negotiating concerning the details of the arrangement. This committee of trustees is in no respect an official body, but simply acts as the agent of such bondholders as have deposited bonds with it to represent them in the purchase of the road at foreclosure sale and its subsequent disposition. The lease to the Erie cannot be executed, of course, until after foreclosure and reorganization, but the contract for the lease can be made just as well beforehand, as it will be.

#### Transportation in Congress.

In the Senate, on the 8th:

Senator Kirkwood, of Iowa, introduced a bill "to organize the National Railway Company of the United States and for other purposes." It proposes to appoint a national board of commissioners of inter-state transportation to consist of Samuel L. M. Barlow, of New York; George D. Rice, of Massachusetts; John A. Bower, of Pennsylvania; Isaac B. Hymer and J. M. Burdige, of Indiana; J. D. Felthousen and Josiah M. Smith, of Illinois; Horace Everett, of Iowa; C. C. Rainwater, of Missouri, and several other designated persons with power to purchase, lease, consolidate, construct and operate a line of railway with two or more tracks from Boston via New York, through New Jersey, Pennsylvania, West Virginia, Ohio, Indiana, Illinois and Iowa to Council Bluffs and branch lines throughout the country in almost every direction. It is provided that the rates for transportation shall be fixed by a government commission and the bill contains elaborate prohibitions of excessive charges, discriminations and pooling combinations with other roads.

#### General Railroad News.

##### MEETINGS AND ANNOUNCEMENTS.

###### Meetings.

Meetings will be held as follows:

*Delaware & Hudson Canal*, annual meeting, at the office in New York, May 18, at noon. Transfer books close April 21.

*Missouri, Kansas & Texas*, annual meeting, at the office in Parsons, Kan., May 21, at 1 p. m.

*New Haven & Northampton*, special meeting, at the office in New Haven, Conn., April 15, at 11 a. m. The meeting is to vote on the question of authorizing a new mortgage on the road.

###### Railroad Conventions.

*The Southern Time Convention* will meet at the Continental Hotel, Philadelphia, April 16.

*The Car Accountants' Association* will hold its annual convention at the Grand Pacific Hotel, Chicago, April 23.

*Master Mechanics' Association*, annual convention, at the Grand Hotel in Cincinnati, May 18.

###### Dividends.

Dividends have been declared as follows:

*Baltimore & Ohio*, 4 per cent., semi-annual, on the stock of the Main Stem, payable in new stock. Also 5 per cent., semi-annual, on the stock of the Washington Branch, payable April 16, in cash.

###### Mail Service Extensions.

Mail service has been ordered over railroad lines as follows:

*Danville, Olney & Ohio River*, service ordered from Kansas, Ill., to Westfield, 8.28 miles.

*Western Union*, service extended from Rock Island Junction, Ill., to Rock Island, 7 miles.

## Foreclosure Sales.

The *Lafayette, Muncie & Bloomington* road was sold under foreclosure of first mortgages at *Lafayette, Ind.*, April 3, and bought for \$1,413,000 by E. H. R. Lyman, C. R. Cummings, Daniel P. Eels, and John S. Newbern, Trustees, for account of the bondholders. The road is 120 miles long, from *Muncie, Ind.*, to the *Illinois* line. There were two separate mortgages, one on the *Western Division*, from *Lafayette* to the *Illinois* line, 37 miles (which was built several years before the rest of the road), and one on the *Eastern Division* of 83 miles, from *Lafayette* to *Muncie*. The road was, however, sold as one property and the two classes of bondholders join in the purchase and reorganization. The decree of sale named the amount of bonds and unpaid interest due on the *Eastern Division* to be \$2,206,090 and on the *Western Division* \$833,055, and provided that the proceeds of the sale should be divided in the proportion 663-1413 to the *Western Division*, and 747-1413 to the *Eastern Division* bondholders.

The *Pittsburgh Southern* road was to be sold by the Sheriff at *Pittsburgh*, April 14, but that sale was anticipated by the Sheriff of *Washington County*, who sold the road April 3 under a judgment for money advanced. It was bought in by Mr. James H. Hopkins, the largest creditor, for \$55,000. The road is of 3 ft. gauge, and 22 miles long, from *Banksville, Pa.*, to *Washington*. It has no funded debt.

So much of the *Coldwater, Marshall & Mackinaw* road as lies in *Ionia County, Mich.*, will be sold at sheriff's sale May 3, under a judgment sued out by *David H. Kirkpatrick*. The property consists of the graded road-bed and right of way, no part of the road having been ironed. It is said that Mr. Kirkpatrick will buy in the road and will complete a section from the *Detroit, Lansing & Northern* road to *Hudson*, about 10 miles.

## Master-Mechanics' Convention.

Mr. J. H. Setchel, the Secretary, issues a circular announcing that the twelfth annual meeting of the American Railway Master-Mechanics' Association will be held on the 13th, 14th and 15th of May, 1879, at the *Grand Hotel*, in the city of *Cincinnati*. This magnificent hotel has been selected as head-quarters, where the members and their families will be entertained at \$2.50 per day. Those intending to be present will confer a favor upon the committee by sending their names to the Chairman as early as possible, that rooms may be reserved for them. The committee consists of J. H. Setchel, James Eckford, S. S. Pilson. Those wishing rooms will address J. H. Setchel, *Cincinnati, O.*

## Transportation Association.

At a meeting of the Executive Committee in *Chicago*, April 2, there was a long discussion as to methods of enforcing the agreement against the issue of passes. It was finally decided that action by the Committee should be limited to sending notice through the Secretary with a request to comply with the agreement.

Several cases where 1,000-mile tickets had been issued at less than agreed rates were reported, and the Secretary was directed to communicate with the offending companies.

## Chicago Ticket Agreement.

A meeting was held in *Chicago*, April 3, at which were represented the *Chicago, Burlington & Quincy*; *Illinois Central*; *Chicago & Alton*; *Chicago, Rock Island & Pacific*, and the *Chicago & Northwestern*, and an agreement adopted providing that no tickets shall be sold in *Chicago* by any of the lines at less than the regularly published rates; that no rebate, drawback or commission shall be allowed; that no offices, agents or solicitors, except the regularly established and recognized offices of the companies shall be allowed to sell any tickets, and that the lines will redeem at full rates tickets of their issue.

## Meeting of Managers.

A meeting was held in *New York* last week, at which were present the Trunk Lines Executive Committee and representatives of the *Lake Shore*, the *Michigan Central*, the *Pennsylvania* Company, the *Erie* and the *New York Central*. The subjects under discussion were the division of the live stock traffic and the recent reductions in rates. No decision was reached and no action taken, and another meeting was to be held this week, on Wednesday.

## ELECTIONS AND APPOINTMENTS.

*Allegheny Valley*.—At the annual meeting in *Pittsburgh*, April 7, the old board was re-elected, as follows: H. M. Phillips, John Scott, Wm. P. Shinn, D. A. Stewart, Pittsburgh; A. J. Cassatt, J. N. DuBarry, George B. Roberts, Thomas A. Scott, *Philadelphia*.

*American Steamship Co.*.—At the annual meeting in *Philadelphia*, April 7, Henry D. Welsh was elected President, with the following directors: Josiah Bacon, B. H. Bartol, John Price Wetherill, D. B. Cummins, N. Parker Shortridge, Strickland Kneass, William D. Winsor, G. B. Roberts, G. N. Allen, H. C. Butcher.

*Ashtrabula & Pittsburgh*.—At the annual meeting in *Ashtrabula, O.*, the following directors were chosen: A. C. Fisk, Henry Hubbard, H. L. Morrison, *Ashtrabula, O.*; F. Harrington, Rock Creek; O.; C. B. Wick, *Youngstown, O.*; W. Packard, Warren, O.; J. Brooks, *Cleveland, O.*; W. L. Bissell, Thomas D. Messler, Wm. Mullen, W. P. Shinn, Wm. Thaw, *Pittsburgh*; George B. Roberts, *Philadelphia*. The board elected W. P. Shinn, President; Frank Semple, Secretary, Treasurer and Registrar; A. F. Hubbard, Assistant Secretary and Treasurer. The road is leased to the *Pennsylvania* Company.

*Boston, Hoosac Tunnel & Western*.—Mr. Robert L. Harris has been appointed Chief Consulting Engineer in charge of construction, in place of T. Haskins DuPuy, late Consulting Engineer, who has resigned.

Mr. E. B. Burnham has been appointed Superintendent of this road. Office at *Mechanicsville, Saratoga County, N. Y.*

*Baltimore & Ohio & Chicago*.—The *Illinois* organization has re-elected M. L. Doherty President; J. H. Sutor, Secretary and Treasurer; J. L. Randolph, Chief Engineer. The road is owned by the *Baltimore & Ohio*.

*Canada Southern*.—The office and title of Mr. William P. Taylor on this road is General Superintendent, and not General Manager, as stated last week. His office is at *St. Thomas, Ontario*.

Mr. E. P. Murray has been appointed Superintendent of the *Canada* Division in place of George Skinner, resigned.

*Charlotte, Columbia & Augusta*.—Mr. David Cardwell has been appointed Assistant General Freight and Passenger Agent, with office in *Richmond, Va.*

*Chicago & Alton*.—At the annual meeting in *Chicago*, April 7, the three directors whose terms then expired were re-elected for term of three years, as follows: John Crerar, Chicago; John J. Mitchell, *St. Louis*; Lorenzo Blackstone, *Norwich, Conn.*

Mr. A. A. Ackerly has been appointed Superintendent of

Machinery. He will have charge of the locomotive and car departments. All communications relating to the business of these departments should be addressed to him at *Bloomington, Ill.* Mr. Ackerly has been Acting Superintendent since the resignation of Mr. Jackman, to whom he was formerly assistant.

Mr. H. H. Courtright has been appointed General Western Agent, with office at *Kansas City*. He was formerly on the *Hannibal & St. Joseph*, and lately has been Agent for the *Southwestern Railway Association*.

At the annual meetings of this company's leased lines in *Chicago*, April 7, the following were chosen: *Joliet & Chicago*.—President, John Crerar; Directors, T. B. Blackstone, John B. Drake, John McGregor, John F. Slater; Secretary and Treasurer, William M. Larrabee. *Alton & St. Louis*.—President, Lorenzo Blackstone; Directors, John J. Mitchell, T. B. Blackstone; Secretary and Treasurer, T. B. Blackstone. *St. Louis, Jacksonville & Chicago*.—President, George Straut; Directors, T. B. Blackstone, John Crerar, N. W. Green, Charles D. Hodges, Josiah Sawyer, T. E. Blackstone; Secretary, R. N. Moulton; Treasurer, T. B. Blackstone. *Mississippi River Bridge*.—President, John Crerar; Directors, T. B. Blackstone, John B. Drake, John J. Mitchell, George Straut; Secretary and Treasurer, Charles H. Foster.

*Cincinnati, Richmond & Ft. Wayne*.—At the annual meeting in *Richmond, Ind.*, last week, the following directors were chosen: Pliny Hoagland, Wm. O. Hughart, J. N. McCullough, Arthur McKew, John A. Moorman, Wm. Parry, W. R. Shelby, F. H. Short, David Studebaker, Asahei Stone, Wm. Thaw. The road is leased to the *Grand Rapids & Indiana*.

*Concord*.—Mr. J. Thomas Vose, of *Boston*, has been chosen President, in place of *Onslow Stearns*, deceased. Mr. Vose is also President of the *Boston, Concord & Montreal*.

*Indianapolis Pool*.—Mr. Thomas C. Moore has been appointed Agent for the *Indianapolis* pooled lines, in place of S. F. Pierson, resigned.

*Leavenworth, Lawrence & Galveston*.—It is reported that Mr. T. F. Oakes, late of the *Kansas Pacific*, will be General Superintendent of this road, in place of Major Henning, resigned.

*Lehigh Valley*.—Mr. Isaac McQuilkin has been appointed Acting Auditor, in place of J. B. Garrett, resigned. Office at No. 238 South Third street, *Philadelphia*.

*Long Island*.—At the annual meeting in *Long Island City, N. Y.*, April 8, the following directors were chosen: Anthony J. Drexel, Egisto P. Fabbri, Samuel M. Felton, Morris Franklin, Chester Griswold, Henry O. Havemeyer, Elizur B. Hinsdale, Wm. Kevan, Wm. Richardson, Edward E. Sprague, Thomas R. Sharp, Francis B. Wallace, James Hood Wright.

*Maine Railroad Commission*.—The Governor of *Maine* has re-appointed Mr. John F. Anderson, of *Portland*, a member of the *Railroad Commission* for another term.

*Minneapolis & St. Louis*.—Mr. E. W. Gaylord has been appointed Superintendent. The office of Assistant Superintendent, lately held by him, has been abolished.

*Minnesota & Iowa*.—This company has been organized by the election of the following officers: President, Daniel Cameron; Vice-President, Charles Coe; Secretary, Wells E. Dunbar; Treasurer, Wm. E. Potter. Office at *La Crescent, Minn.*

*Nashua & Lowell*.—Mr. James W. Flavin has been appointed General Ticket Agent, in place of George G. Wheeler, resigned. Office at *Nashua, N. H.*

*Panama*.—At the annual meeting in *New York*, April 7, the following directors were chosen: H. H. Baxter, John M. Burke, Charles G. Franklyn, George Garr, George A. Hoyt, Charles D. Leverich, J. G. McCullough, Christopher Meyer, John R. Marshall, Thomas Maddock, Joseph Ogden, Trevor W. Park, Samuel C. Thompson.

The board re-elected Trevor W. Park, President; J. G. McCullough, Vice-President; W. J. Emmet, Secretary and Treasurer.

*Petersburg*.—Mr. L. E. Clark has been appointed Purchasing Agent, in place of W. P. Taylor. Office at *Petersburg, Va.*

*Prince Edward's Island*.—Mr. Alexander McNab has been appointed Superintendent and Engineer. He was formerly on the *Intercolonial*.

*South Carolina*.—Col. S. B. Pickens has been appointed General Freight Agent. Mr. D. C. Allen succeeds Col. Pickens as General Passenger and Ticket Agent. Offices in *Charleston, S. C.*

*Springfield & Western Missouri*.—At the annual meeting in *Springfield, Mo.*, recently, the following directors were chosen: James Abbott, L. A. D. Crenshaw, H. E. Havens, C. H. Heer, W. J. McDaniels, G. D. Milligan, L. H. Murray, W. M. Taggart, Ralph Walker. The board elected L. H. Murray, President and Superintendent; James Abbott, Secretary; Charles Shepherd, Treasurer; P. F. Galt, Auditor and General Passenger Agent.

*Wabash*.—Mr. Cyrus W. Field has been chosen President of this company, in place of Commodore C. K. Garrison, resigned.

*Wisconsin Central*.—J. A. Stewart and E. H. Abbott are Trustees in possession, and have their office in *Milwaukee, Wis.*

*Youngstown & Connonton Valley*.—The officers are: Joseph L. Rue, President; N. A. Smith, General Manager and Superintendent; C. H. Roser, Secretary and Treasurer. Offices at *Carrollton, Carroll County, Ohio*.

## PERSONAL.

—Mr. Gardner Colby, who died in *Boston*, April 2, was an old and wealthy merchant of that city. He was at one time President of the *Wisconsin Central Company*, and was the chief stockholder in that company and the *Phillips & Colby Construction Company*.

—Mr. Wm. W. Street, for many years connected with the *Michigan Central*, and for some time past Contracting Agent in *Chicago* for the *Blue Line*, died in that city April 1, of erysipelas in the head.

—Mr. J. B. Garrett has resigned his office as Auditor of the *Lehigh Valley Railroad Company*, to accept the position of Treasurer of the *Girard Life Insurance Company*, of *Philadelphia*.

—Mr. Wm. H. Swift, one of the oldest of American Railroad Engineers, engaged in the construction of some of the earliest New England railroads, and lately for many years a director of the *St. Louis, Iron Mountain & Southern*, died in *New York* last Monday, aged 79 years.

—Mr. J. H. Setchel, Master Mechanic of the *Little Miami* road and Secretary of the *Master Mechanics' Association*, has been elected Police Commissioner of *Cincinnati*. That

city is to be congratulated on securing the services of so capable and energetic an officer.

—Commodore C. K. Garrison has resigned his position as President of the *Wabash Railway Company*. His reasons for this action are not stated.

—Major B. S. Henning has resigned his position as General Superintendent of the *Leavenworth, Lawrence & Galveston* and the *Missouri River*, *Ft. Scott & Gulf* roads. Major Henning was on the *Kansas Pacific* in 1864 and the next year was made Superintendent of the *Leavenworth, Lawrence & Galveston*. In 1868 he was appointed to the same position on the *Missouri River*, *Ft. Scott & Gulf*, and in 1874 his former *Leavenworth* road was added to his charge, and he was also its Receiver for a time. It is said that he has been offered an important position.

## TRAFFIC AND EARNINGS.

## Railroad Earnings.

Earnings for various periods have been reported as follows:

Year ending Dec. 31:	1878.	1877.	Inc. or Dec.	P. c.
<i>Columbus &amp; Hocking Valley</i>	\$871,553	\$828,900	I. \$42,653	5.1
Net earnings	301,127	357,756	I. 33,371	9.3
<i>Columbus &amp; Toledo</i>	517,871	323,827	I. 194,044	59.9
Net earnings	222,250	—	—	—
<i>Leavenworth, Lawrence &amp; Galveston</i>	439,604	410,337	I. 29,267	7.1
Net earnings	115,066	103,565	I. 11,501	11.1
<i>Mobile &amp; Montgomery</i>	680,183	600,037	I. 14,146	2.1
Net earnings	258,390	224,561	I. 33,829	15.1
<i>Rock Island &amp; Peoria</i>	360,489	—	—	—
Net earnings	96,278	—	—	—
<i>Three months ending March 31:</i>	1878.	1878.	—	—
<i>Atchison, Topeka &amp; Santa Fe</i>	\$1,230,974	\$54,850	I. \$576,124	88.0
<i>Bur. Cedar Rapids &amp; No.</i>	326,563	437,749	D. 111,186	35.4
<i>Central Pacific</i>	3,380,517	3,320,109	I. 60,408	1.8
<i>Chicago &amp; Alton</i>	985,794	958,557	I. 37,237	3.9
<i>Chicago &amp; Eastern Illinois</i>	195,555	182,398	I. 13,157	7.2
<i>Chicago, Mil. &amp; St. Paul</i>	1,701,000	2,036,357	D. 335,357	16.5
<i>Chicago &amp; Northwestern</i>	3,040,230	3,258,632	D. 218,402	6.7
<i>Galveston, Houston &amp; Henderson</i>	130,065	102,172	I. 29,703	28.2
Net earnings	57,604	24,438	I. 35,256	136.1
<i>Grand Western</i>	2,180,209	2,298,144	D. 117,875	5.0
<i>Hannibal &amp; St. Joe</i>	1,059,791	1,214,030	D. 154,230	12.7
<i>Illinois Central, Illinois lines</i>	1,245,063	1,270,645	D. 24,682	1.9
<i>Illinois Central, Iowa lines</i>	321,317	401,810	D. 80,493	20.3
<i>Kansas Pacific</i>	788,017	637,752	I. 150,285	23.6
<i>Mo. Kansas &amp; Texas</i>	613,860	634,662	D. 20,823	3.3
<i>Mobile &amp; Ohio</i>	518,827	626,537	D. 107,710	17.2
<i>St. L., Alton &amp; T. H., Belleville Line</i>	135,692	114,118	I. 21,574	18.9
<i>St. Louis, Iron Mt. &amp; Southern</i>	1,025,770	1,061,037	D. 35,267	3.3
<i>St. Louis, Kan. City &amp; No.</i>	843,253	799,158	I. 44,095	5.5
<i>Toledo, Peoria &amp; Warsaw</i>	263,788	334,189	D. 70,401	2.1
<i>Wabash</i>	978,738	1,082,302	D. 103,024	9.6
<i>Two months ending Feb. 28:</i>	—	—	—	—
<i>Atlantic &amp; Gt. Western</i>	\$307,508	\$554,854	I. \$82,654	14.9
<i>At. Miss. &amp; Ohio</i>	231,345	260,472	D. 29,127	11.2
<i>Bur. Cedar Rapids &amp; Northern</i>	214,630	312,517	D. 97,878	31.3
Net earnings	74,230	121,153	D. 46,927	38.7
<i>Chicago, Burlington &amp; Quincy</i>	2,087,474	1,950,617	I. 130,857	6.7
Net earnings	930,000	835,483	I. 104,507	12.5
<i>Kansas Pacific</i>	447,005	362,451	I. 84,014	23.3
Net earnings	116,754	85,642	I. 31,112	36.3
<i>Ogdensburg &amp; Lake Champlain</i>	42,532	60,722	D. 18,100	30.0
<i>Month of January:</i>	—	—	—	—
<i>Alabama Great Southern</i>	\$33,941	\$37,330	D. \$3,380	9.1
<i>Grand Trunk</i>	£153,662	£154,023		

**Southern Railway & Steamship Association Rates.**

Later advices confirm the statement that rates had been badly cut from Southern points and that General Commissioner Powers had declared all through rates off, except on cotton. Rates have gone down more than one-half and are entirely unsettled. A meeting of the Southern Railway & Steamship Association was to be held April 9, to try and make some settlement. The Green Line roads, it is said, charge the first cutting upon the Eastern lines, while some of the latter say that it originated with the Virginia & Tennessee Air Line, but all parties seem to have joined in very promptly.

**Coal Movement.**

Coal tonnages for the three months ending March 29 are reported as follows, the tonnage in each case being only that originating on the line to which it is credit:

	1879.	1878.	Inc. or Dec.	P. c.
Philadelphia & Reading	1,358,890	521,507	I.	837,383 160.6
No. Central Shamokin Div., and Summit Branch R.R.	136,381	98,474	I.	37,907 38.5
Sunbury, Hazleton & Wilkes-Barre	7,914	5,834	I.	2,080 35.9
Central of N. J., Lehigh Div.	833,348	393,547	I.	430,801 111.7
Lehigh Valley	757,024	610,483	I.	147,131 24.4
Penn. & New York	4,770	5,447	D.	677 12.4
Del. Lackawanna & Western	733,764	437,288	I.	296,476 67.8
Del. & Hudson Canal Co.	635,058	547,238	I.	87,820 16.0
Pennsylvania Coal Co.	246,367	115,006	I.	131,361 11.43
State Line & Sullivan	12,984	8,097	I.	4,887 60.3
Total anthracite	4,727,100	2,742,931	I.	1,984,169 72.3
Semi-bituminous				
Cumberland, all lines, Huntingdon & Broad Top	239,826	182,242	I.	57,584 31.0
East Broad Top	33,230	32,933	I.	297 0.0
Tyrone & Clearfield	14,512	18,286	D.	3,774 20.6
Bellefonte & Snow Shoe	233,647	286,523	I.	37,124 13.0
Total semi-bituminous	3,409	8,133	D.	4,035 57.2
Bituminous				
Barclay	94,130	77,843	I.	16,293 20.8
Allegheny Region, Pa. R. R.	36,186	45,061	D.	8,875 19.7
Penn. and Westmoreland	177,127	170,000	I.	7,127 4.2
West Penna. R. R.	46,029	30,794	I.	15,226 49.4
Southwest Penn. R. R.	7,993	10,297	D.	2,304 22.4
Allegheny Region, Pa. R. R.	93,660	92,941	I.	719 0.8
Total bituminous	455,122	426,036	I.	28,186 6.0
Coke				
Allegheny Region, Pa. R. R.	12,608	.....	.....	.....
Penn. and Westmoreland	27,045	.....	.....	.....
West Penna. R. R.	22,415	.....	.....	.....
Southwest Penn. R. R.	217,105	.....	.....	.....
Pittsburgh Region, Pa. R. R.	36,283	.....	.....	.....
Total coke	315,516	.....	.....	.....
The anthracite coal tonnage of the Belvidere Division, Pennsylvania Railroad, for the three months ending March 29 was:				
1879.	1878.	Inc. or Dec.	P. c.	
South Amboy for shipment	84,427	125,640	D.	40,222 32.0
Local distribution on N. J. lines	70,425	40,204	I.	30,221 97.6
Company's use on N. J. lines	24,890	21,400	I.	3,484 10.3
Total	180,742	187,259	I.	2,483 1.3

Of the total this year 137,867 tons were from the Lehigh, and 51,875 from the Wyoming Region.

**Grain Movement.**

Receipts and shipments of grain of all kinds for the week ending March 29 are reported as follows, for past six years, in bushels:

Year.	Northwestern	Atlantic
1874.	1,849,558	1,248,880
1875.	1,398,005	1,054,587
1876.	1,574,910	1,250,750
1877.	1,290,556	1,182,741
1878.	2,728,322	2,528,517
1879.	3,030,710	2,860,223

The shipments of Northwestern markets are the largest since navigation closed.

San Francisco receipts for the week ending March 29 were 8,060 barrels flour, 520,457 bushels wheat, 22,190 bushels barley and 8,978 bushels other grain; total, reducing flour to wheat, 561,915 bushels.

Of the receipts at Atlantic ports for the week this year, 35.8 per cent. were at New York, 25.9 at Baltimore, 18.6 at Philadelphia, 12.8 at Boston, 5.5 in New Orleans, 1.6 at Portland, and 0.2 per cent. at Montreal. The total Atlantic receipts have been exceeded twice this winter, but while the Baltimore, Philadelphia and Boston receipts are the largest of the year, the New York receipts are the smallest since January—an indication that the cut rates and contracts made a few weeks ago were made in favor of other ports more than to New York. The latter this year received 39.2 per cent. of the whole in January, 42.5 in February, and 38.8 in March.

The shipments from the eight Northwestern markets are the largest ever made in a single week by rail, and indicate pretty clearly that the grain is going forward on contracts at low rates made before the 23rd. It is claimed that few if any of these are as low as 15 cents from Chicago to New York, and "about 18" is named as the prevailing rate. Notwithstanding the amount of these shipments, they still did not quite equal the receipts of these markets, which are now sure to be full of grain when navigation opens.

San Francisco wheat exports for March were 1,195,590 bushels. For the nine months of the California crop-year ending March 31 they were: 1878-79, 18,927,985 bushels; 1877-78, 5,918,302 bushels; increase, 8,009,688 bushels, or 135.3 per cent.

**Colorado Freights.**

It is reported that, at a meeting of representatives of the Union Pacific, the Kansas Pacific and the Atchison, Topeka & Santa Fe, held in Kansas City last week, an agreement was made for the division of the Colorado business and the maintenance of rates. This will end a long contest.

**Elevated Railroad Traffic.**

During the first three months of 1879 there were 7,539,476 passengers carried on the lines of the New York Elevated and 3,935,623 on the Metropolitan Elevated Railroad. The latter does not run trains Sunday. This is equivalent to an average of 83,772 passengers per day on the New York and 51,102 on the Metropolitan (counting the days on which trains were run). Heretofore reports have shown usually a

traffic of nearly 14,000 per day on the West Side line of the New York Elevated (five miles long), so that there must have been an average of about 70,000 a day on the East Side line (8½ miles). This latter traffic is about equal to one-half that on the London Metropolitan, which is carried in a much smaller number of trains, however.

The new Eighth avenue station of the Metropolitan road (two-thirds of a mile west of the main line) is one of the best stations on the road, though it is not all additional traffic; many that formerly used the Fiftieth and Fifty-eighth street stations were getting on and off there.

**RAILROAD LAW.****What Constitutes Ratification of a Lease.**

The St. Louis *Republican* reports the following decision in the case of Taussig against the St. Louis, Kansas City & Northern Company: "The plaintiff, George W. Taussig, brought his suit upon coupons of bonds issued by the St. Louis, Council Bluffs & Omaha Railway Company. It was urged that the Kansas City & Northern road had promised to pay the interest coupons on these bonds, in consideration of a lease of the Council Bluffs road to it. The defense was interposed that the officers of defendant had no authority to promise the payment of the coupons of the Council Bluffs road, and that the lease, which was the consideration, was rejected by defendant's stockholders in March, 1874. Defendant operated the Council Bluffs road from September, 1872, to March, 1874, and paid the three coupons due in March, 1873 and 1874, and September, 1873. The opinion of Judge Wickham was substantially as follows:

"This suit is brought on coupons cut from bond No. 38, issued by the St. Louis, Council Bluffs & Omaha Railroad Company. On the back of the original bond offered in evidence was a writing signed by the president and secretary of the defendant company. This writing is in the nature of a promise on the part of the defendant company to pay the interest coupons attached to said bond, and is in words as follows: 'This bond is secured by a mortgage upon a railroad which is leased to the St. Louis, Kansas City & Northern Railway Company for a fixed rent equal to the amount of interest upon the whole series of bonds, and by the terms of the lease the rent is to be applied by the lessee directly to the payment of the interest.' This case comes squarely within the case of Singer vs. St. Louis, K. C. & N. R. R. Co., decided by the Court of Appeals in January, 1879. That Court holds that the reports made to stockholders of defendant at their annual meetings, showing that the bonds thus indorsed had been placed on the market and sold to *bona fide* purchasers, and the payment of interest in fact by paying some of the coupons cut from the same, amounted to a ratification of said promise by said officers, and binds the defendant to pay said coupons. Even if the lease upon which the promise was based was afterward rejected by the stockholders, still it is not open to defendant under the circumstances of the case to urge the defense of *ultra vires* or non-ratification of the lease by its stockholders, and defendant is estopped from making such defense. In this case, therefore, the plaintiff is entitled to recover, and judgment will be given in his favor."

**Personal Injury—Limitation of Liability.**

The case of Henry Rickard against the North Pennsylvania Railroad Company, decided on Monday last, puts an interpretation on an act of Assembly limiting the liability of railroad corporations in certain cases. Rickard, the plaintiff, went to Sellersville Station, on the line of the railroad, where some goods had arrived consigned to him and were in a car on a siding off of the main track. The railroad employees in charge allowed him to enter the car to unload his goods, and while thus engaged other cars which had been detached from a locomotive struck the car in which plaintiff was, knocking him over and causing injuries, for which suit was brought. The verdict was for plaintiff for \$1,000, subject to the point reserved whether, under the act of April 4, 1868, defendants were liable at all. The act in question provides that "when any person shall sustain personal injury or loss of life while lawfully engaged or employed on or about the roads, works, depot or premises of a railroad company, or in or about any train or car therein, the right of action and recovery in all such cases against the company shall be such only as would exist if such person were an employee." Subsequently the court below entered judgment for defendants on the point reserved, holding that the case was within the act. The plaintiff took the present writ, assigning the entry of judgment for error. The Supreme Court, in an opinion filed by Mr. Justice Gordon, affirms the judgment of the court below.—*Philadelphia Times*.

**Expelling a Drunken Passenger.**

In Railroad Company against Valley, appeal, the Ohio Supreme Court holds:

1. It is not only the right of a conductor to expel from the train a drunken, unruly, boisterous passenger, but when such a person endangers by his acts the lives of people, it is the duty of conductor to remove him, in order to protect other passengers from violence.

2. But this right must be reasonably exercised, and not so as to inflict wanton or unnecessary injury upon the offending passenger, nor so as to needlessly place him in circumstances of unusual peril.

3. If, having exercised reasonable prudence, considering the time, place and circumstances, as also the condition of the drunken man himself, the conductor expels such passenger and he is afterward run over and killed by another train not in fault, the expulsion itself is not such proximate cause of his death as will make the company liable.

**Note Given to Influence Location of Road.**

In First National Bank against Hendrie, the Iowa Supreme Court lately decided that a note given to a railroad company to induce it to change the location of its road will not be held void as against public policy. Notes, contracts and votes of public aid to influence location of a road have always been held valid and supported by sufficient consideration.

**Stock Damages—Local Laws.**

In Olsen, against the Denver & Rio Grande Co., the Colorado Supreme Court lately held:

1. An instruction that submits to the jury the question as to the proper construction of a town ordinance is erroneous.

2. A railroad is not, unless guilty of gross negligence, liable for killing an animal running at large within city limits, in violation of an ordinance of such city.

3. If, however, the animal was wantonly killed, or its death was the result of gross negligence on the part of the company, the owner, notwithstanding the fact that the animal was unlawfully at large, is entitled to recover.

**Excess of Car-Load Weights Under Iowa Law.**

A dispatch from Des Moines, Ia., March 27, says: "The case of Hornby & Price against the Chicago & Rock Island Railroad Company is decided in favor of the railroad. The plaintiffs shipped lumber, for which the company charged the rates under the tariff law for car-load of 20,000 lbs., and third-class rates for all excess of weight on each car. They sued to recover the third-class excess paid, and the

penalty of five times the amount paid. The Court held that the charges and collections were legal, which decides a large number of similar cases."

**THE SCRAP HEAP.****Railroad Equipment Notes.**

The New York, New Haven & Hartford shops are building 200 box cars for the use of the road. The wheels are furnished by the Wason Manufacturing Co., and the axles by N. W. Talcott.

The Canada Engine & Machinery Co., at Kingston, Ont., lately shipped a locomotive to Winnipeg for the Pembina Branch of the Canadian Pacific. It will go by way of Chicago and St. Paul.

The Rogers Locomotive Works, at Paterson, N. J., last week delivered a new engine to the New York & Greenwood Lake road. The works have several orders on hand.

The Grant Locomotive Works, at Paterson, N. J., are building some more heavy freight engines for the Erie.

The Baldwin Locomotive Works, in Philadelphia, have an order for five locomotives for a road to be built in the Sandwhich Islands.

**Iron and Manufacturing Notes.**

The Indianapolis, Cincinnati & Lafayette road has adopted the Lorenz safety switch, and the whole road is to be furnished with it.

The Revolving Scraper Co., at Columbus, O., has recently made shipments to Mexico, Brazil, South Africa and England, to fill orders. The company's works are running to their full capacity on orders.

Large shipments of iron ore are now being made from the Green Pond Mine in Morris County, N. J. The ore goes over the New Jersey Midland and Pennsylvania roads to the Pennsylvania Steel Works, at Baldwin, near Harrisburg, Pa.

Musconetcong Furnace, at Stanhope, N. J., has one stack in blast and will soon blow in the second one.

The Chicago Splice Bar Mill of Sellers, Fowler & Co. is now at work on an order from the Atchison, Topeka & Santa Fe for 200,000 of their Samson splice bars. The company has adopted the Samson bar as its standard rail-joint. The Samson splice is now in use on over 30 roads.

The rail mill of the Springfield Iron Co., at Springfield, Ill., which was burned down March 8, has been replaced by a brick building, which is now so nearly finished that work in the mill was resumed April 7. This is pretty quick work.

The Farist Steel Works, at Windsor Locks, Conn., are preparing to resume work after a stoppage of eight months.

It is reported that Wheatland Rolling Mill in Mercer County, Pa., is to be sold to the United States Rolling Stock Co.

Duquesne Forge, at Pittsburgh, is making a number of steel shafts and some heavy steamboat work.

The Glandover Iron Works, at Danville, Pa., are running full time on orders for 30-lb. iron rails.

In the Hanging Rock region, on the Kentucky side of the river, Bellefonte, Hunnewell and Ashland furnaces are in blast and Charlotte and Mt. Savage furnaces are preparing to blow in.

The Youngstown (O.) Rolling Mill Co. is putting in a new 12-in train of rolls and making other improvements.

Falcon Furnace, of Brown, Bonnell & Co., at Youngstown, O., went into blast last week.

Coleraire Furnace, in Northampton County, Pa., has one stack in blast and another ready to blow in.

Fullerville Furnace, in St. Lawrence County, N. Y., is preparing to go into blast this Spring.

**Bridge Notes.**

The American Bridge Co., of Chicago, has suspended payment. The shops are now being run by the Chicago & Alton Company for the purpose of finishing the work on the Missouri River bridge, at Glasgow, on that road. It is understood that the business will be closed up. Some unfortunate contracts, chiefly the Poughkeepsie Bridge, and the loss of one span of the Glasgow Bridge, carried away by a freshet, are said to have caused the suspension.

The Toronto Bridge Co. is putting up works in Toronto, Ont., and will build iron and combination bridges. The new Canada tariff will favor it greatly.

**Prices of Rails.**

Steel rails are reported firm at \$43 to \$45 per ton at mill. The *Iron Age* says: "The only feature of interest to report this week is the rumored purchase of 12,000 tons of steel rails by Mr. Vanderbilt, from one of the English manufacturers. The price is said to be about \$55 in New York, subject to some guarantee as to the wearing quality of the rails. We have no definite information further than that such a transaction has been closed, but it may turn out that the purchase is on account of the Canada Southern road, and that they will go through in bond."

The rails are for the New York Central, bought of Cammels, guaranteed for ten years, and also to be as good as the first bought of this firm, which were laid in 1866, and of which less than 9 per cent. have had to be renewed, as yet.

Iron rails are firm, with quotations at \$33.50 to \$35.50 per ton at mill, and sales of 12,000 tons reported, mostly in small lots. The demand is active and sellers are generally demanding cash or undoubted security.

In old rails, business has been light and offerings small. Philadelphia prices are quoted at \$22 for good qualities; Pittsburgh, \$22.50 to \$23 per ton on cars.

**Spikes.**

"It carries hoop-poles and charcoal," is what a Jerseyman says when he wants to express with emphasis that a railroad is very poor indeed.

"The — road has bought five or six ties and a new rail, and will put them down as soon as possible." This is the slighting way in which a Connecticut paper refers to the commendable enterprise of a local road. It should be praised, not sneered at. We can't all be Pennsylvanias or New York Centrals and buy ties by the hundred thousand or go to Europe for fancy steel rails.

The managers of the Pan Handle Line ought certainly to be skilful men, thinks *Puck*.

of Public Works at Wellington, New Zealand, until Sept. 30, 1879, and meantime information, maps, etc., may be obtained from Walton W. Evans, at No. 66½ Pine street, New York.

The government has now 1,068 miles of railroad opened for traffic in the colony, and other lines are projected. There are large and valuable deposits of iron ore and coal in the islands composing the colony. To illustrate the possibilities of the business there, it is stated that during the last eight years 15,500 tons of cast iron and 98,000 tons of wrought iron have been imported, in addition to all the materials for the government railroads. The importations have been wholly from England, but it is desired to promote the iron manufacture in the colony.

#### Quick Work with a Bridge.

That Chief Engineer Smeed, of the Kansas Pacific, and Bridge Supervisor C. W. Seivers have their business well in hand is instanced by the quick rebuilding of the bridge across Soldier Creek. The bridge was burned at six in the morning. Before noon the timber for rebuilding had been brought from Wamego and was on the ground. A force of 50 men had been brought from three directions, and were hard at work before 12 o'clock, and by 5:40 the next morning the bridge was ready for trains to pass; so that the trains all passed over the road as usual, in less than 24 hours after the accident.—*Lawrence (Kan.) Standard*, April 2.

#### Instructions to Passengers.

A correspondent of *The Railroader* makes the following suggestions as to the conduct of passengers toward ticket agents and conductors, which some how a considerable class of travelers, seem to have found out and practiced for themselves:

"When you get to the station, hunt up the agent and ask him what time the next train goes. Never mind about telling him which way, for he can ask you that. It will show whether he is paying any attention to your question. Then ask him what time all the other trains come, just to see if he knows. If you think of it, ask if they stop, if they are freight or passenger, and any other little things you can think of, for you know he gets paid for answering questions. It don't matter whether you intend riding on the train or not. If you are tired go and sit down, but do not rest longer than necessary, for you have not inquired if the road is going to change time soon, and what time the train will be likely to get through on the new card. Ask him what time the trains run by on his road, and how much faster that is than Chicago time, for he knows, and if he does not tell, it is because he is uncivil. Just as the train is coming, and the agent is closing his ticket window to go out to the train, rush up and tell him you want a ticket. Don't say anything about where you want to go. See how near he can guess at it. Give him a 10 dollar bill, and after he has hurried up to get out his change box, if there is any silver among it, say to him: 'Here, I guess I have got the change,' for this is the way to find out his disposition. Then it is a good time to tell him you have a trunk to check. The world was not made in a day, and what's the use of being in a hurry, you know. Put your ticket in your pocket-book, and button two or three coats over your pocket. Don't make a move to get it ready for the conductor until he asks you for it, for he may miss you, and you would be that much ahead. Then he has lots of time to wait, but if he hasn't it's not your fault. During your trip, ask the conductor all the questions you asked the agent, for perhaps the agent has lied to you about some of them. If the conductor answers you short, in reply to any of your questions, it is because he is mad at your buying a ticket. He wanted you to pay him so he could knock down the money—for they all steal, you know."

#### American Instruments for Russia.

Messrs. Heller & Brightly, the well-known Philadelphia makers of instruments, last week received a large order for engineering instruments from the Russian government.

#### An Englishman's Good Opinion of American Railroads.

A correspondent of *Herapath's Journal*, who we fear may have some American railroad securities to sell, writes as follows: "At a time when the profits of English railways are growing smaller, it may be of advantage to compare them with railways on the other side of the Atlantic. Possibly some of your readers may be able to benefit by the same. Neither here nor over the water have all railways been successful; but taking the best in each country it would seem that Americans will do something more than hold their own against English railways. American railways—1. Cost about one-third or even less per mile, and are in sound condition. 2. Charge all additions to old lines to revenue, while in England enormous sums are spent on old lines, thereby piling up a very heavy irredeemable capital account. 3. Show the possibility of reducing their fixed charges on bonds from 7 and 6 per cent. to 5 and even 4 per cent., greatly to the advantage of the open stock. 4. Are capable of vast extension as trade revives and population increases; these elements advance more rapidly in a new than in an old settled country. 5. Charge very low for all kinds of freight, while on English lines a very much higher rate is levied to enable the lines to meet their heavy capital cost. 6. Are taxed much less than similar roads in England, where all lines are complaining of the severity of taxation. In the one country this article is high and increasing; in the other it is low and decreasing."

Most of this is true, but it pains us to add that those rates have been getting lower so fast that the American roads have not been able to keep up their dividends so well as the English roads.

#### Engineers' Club of the Northwest.

At a recent meeting of this society a committee on reorganization reported that the majority of the members were in favor of the following: In favor of incorporating the club; to be named the Western Society of Engineers; issuing certificates of members; election of honorary members; the purchase of life memberships; creating additional officers; a higher standard of qualification for membership; voting by letter ballot; securing permanent quarters for the club; opposed to holding weekly social meetings; in favor of an additional monthly evening meeting; opposed to the publication of papers in any professional or scientific journal; in favor of the publication of papers in permanent form ten times a year; in favor of publishing additional copies of publications for sale to members; in favor of giving public lectures under the auspices of the society; and opposed to embodying in the by-laws the question of considering proposed legislative enactments.

The report was accepted, and the committee discharged. Under a resolution presented Messrs. Wm. Sooy Smith, C. W. Durham, B. Williams, D. C. Cregier, S. S. Greeley, and John Nichol were chosen a committee of reorganization.

#### OLD AND NEW ROADS.

**Atchison, Topeka & Santa Fe.**—For some time past the question of consolidating the Kansas City, Topeka & Western with this company has been under consideration. It has been finally decided to offer to Kansas City, Topeka & Western stockholders stock of the Atchison, Topeka & Santa

Fe Company in exchange, share for share, the proposal to remain open until April 15.

The Kansas City, Topeka & Western, originally the Kansas Midland, owns a line from Kansas City, Mo., to Topeka, Kan., 66 miles, which has been leased to the Atchison, Topeka & Santa Fe since Oct. 1, 1875. The stock was \$2,250,000 by the last report.

The Boston *Advertiser* says: "This company announces the incorporation of the Kansas City, Emporia & Southern Railroad Company to build a road from Emporia, via Eureka, to the south line of the state, of which they will construct this year 65 miles at an estimated cost of \$10,500 per mile. Also the incorporation of the Cowley, Summer & Fort Smith Railroad Company to build a road from Wichita, via Winfield, to the south line of the state, at or near Arkansas City in Cowley County, and also from a point on said road, via Wellington, to the south line of the state, at or near Caldwell in Sumner County, of which they will construct this year 77 miles, at an estimated cost of \$10,000 per mile. Also the incorporation of the Marion & McPherson Railroad Company to build a road from Florence, via Marion Centre and McPherson City, to a point on their main line in Rice County, of which they will construct this year 46½ miles, at an estimated cost of \$9,500 per mile. The Atchison, Topeka & Santa Fe Railroad Company will lease these several roads on their completion, furnishing rolling stock and paying a rental of not less than 35 per cent., nor more than 38 per cent., of their respective gross earnings, as may be deemed equitable when the leases are made. These several companies will issue a first-mortgage gold bond, running 30 years, with interest at 7 per cent. per annum, payable semi-annually, principal and interest guaranteed by the Atchison, Topeka & Santa Fe Railroad Company, and limited to \$8,000 per mile. In consideration of this guarantee, the Atchison, Topeka & Santa Fe Railroad Company will receive all the capital stock of these several companies, less what is delivered to several counties and townships for aid voted. To secure the money necessary to construct the several roads the Atchison, Topeka & Santa Fe Railroad Company offer the following proposal: For \$1,000 in cash the company will give one \$1,000 bond of one of these companies and one share of the capital stock of the Atchison, Topeka & Santa Fe Railroad Company, each holder of seventy shares of said stock being entitled to subscribe for \$1,000, and all subscriptions must be made for \$1,000 or multiples thereof. This subscription is now offered to the stockholders of the Atchison, Topeka & Santa Fe Railroad Company, of record April 15 until April 18."

**Baltimore & Ohio.**—A dispatch from Baltimore, April 9, says: "At the meeting of the directors of the Baltimore & Ohio Railroad Company held in this city to-day a dividend of 4 per cent. was declared on the capital stock of the Main Stem for the half-year ended March 31 ult., payable in the stock of the company, and a semi-annual dividend of 5 per cent. was declared on the stock of the Washington Branch, payable in cash on and after the 16th inst.

"The net earnings of the main stem for the six months ended March 31, 1879, were \$2,064,012.97, \$499,319.27 more than for the same period of the preceding year. After payment of interest and taxes, and in addition to expenditures of \$200,000 in cash for new locomotives and cars built at the shops of the company, and investments for the sinking funds in reduction of the mortgage debts amounting to \$329,743.11, the floating debt (incurred in aiding the construction of connecting roads) was further reduced during the six months by the application of the net earnings to the extent of \$761,640.09. The stock dividend will aggregate 5,683 shares at par, an equivalent of \$568,300."

**Billericia & Bedford.**—It is said that the equipment of this 2-ft. gauge road, which caused some talk when it was built, has been sold and will be sent to Maine for a road now building there. This is a preliminary to an entire abandonment of the road.

**Buffalo, Syracuse & Albany.**—The project for the granting of the tow-paths of the state canals to be used as a road-bed for a narrow-gauge railroad, is before the New York Legislature again this year. It meets with very strong opposition, and does not seem likely to pass.

**Burlington & Missouri River in Nebraska.**—This company's Republican Valley line is now completed to Bloomington, Neb., 13½ miles beyond the late terminus at Riverton, and 69 miles from the junction with the main line at Hastings.

The leased Nebraska road has been extended and opened for business to Nemaha City, Neb., five miles southward from the old terminus at Brownville, and 27 miles from Nebraska City.

**Canada Atlantic.**—Hearings have been had this week before a committee of the Dominion Parliament on the petition of this company for leave to build a bridge over the St. Lawrence at Coteau Landing, above Montreal. The petition is strongly opposed.

**Central Branch, Union Pacific.**—A bill is before Congress to release this company from all its liabilities to the United States under the acts of 1862 and 1864, on condition that it shall resign all claims it may have upon the government under said acts.

**Central, of Iowa.**—In the appeal of Russell Sage and others from the foreclosure and sale of this road under decree of the United States Circuit Court for Iowa, the United States Supreme Court, on April 7, gave its decision confirming the decree of the Circuit Court. The Court says that in this case a small party of bondholders seek to overturn an arrangement agreed to by a large majority and sanctioned by the Court. The agreement does not lessen their security or postpone their lien to others, and ought not to be set aside without substantial reasons. No such reasons have been presented on the record, and the Court holds that the sale and agreement must be confirmed. This will permit the transfer of the road to the bondholders under the sale, and the completion of the reorganization of the company under the bondholders' agreement.

**Chautauqua Lake.**—The *Cleveland Herald* of April 5 says: "On last Thursday the papers for the closing of the contract of the sale of the Chautauqua Lake Railroad were signed in this city, and \$25,000 deposited. The purchasers are New York and Philadelphia capitalists. Colonel A. M. Martin, of the well-known banking house of Perkins, Livingston, Post & Co., New York, and Charles S. Huichman, of Philadelphia, representing others, signed the contract. A new company, to be called the Dunkirk, Chautauqua Lake & Pittsburgh Railway Company, with a capital of \$500,000 will be organized and the road extended to Dunkirk, only 10 miles. The road originally cost \$1,600,000 dollars and more than \$400,000 have since been expended upon it. The whole was purchased in August last for \$75,000, f<sup>c</sup>ee from all debts, by William E. Lewis, of Cleveland. He has now sold it for \$150,000. This is less than the iron and rolling stock is worth. The purchasers took possession yesterday. About the 1st of May regular passenger and freight trains for the summer will be put on. The large excursion travel to Chautauqua Lake will be better accommodated than ever before."

The road was formerly the Buffalo, Corry & Pittsburgh, and extends from Corry, Pa., to Brocton, N. Y., 43 miles.

**Cherokee.**—The Cherokee Iron Company, which bought this road at foreclosure sale, is now at work on an extension from Rockmart, Ga., to Cedartown, 2½ miles. The old part of the road is also to be repaired and improved.

**Chicago, Milwaukee & St. Paul.**—The contract for the extension of the Iowa & Dakota Division from Pattenville, Ia., westward to the James River in Dakota has been let to Langdon & Co., of Minneapolis, Minn., the work to be done by Oct. 15. The company is to furnish the bridges over the Big Sioux and James rivers.

Argument was to be heard this week in the United States Circuit Court at Milwaukee on the old suit brought by Wm. Barnes as trustee under the La Crosse & Milwaukee mortgage of 1858 to set aside the foreclosure of prior mortgages on that road, its sale and transfer to the present company. Mr. Barnes asks that the foreclosure of his mortgage had in 1859 may be set aside, and that he may be allowed to foreclose as though no proceedings had ever been taken by him; also that the Chicago, Milwaukee & St. Paul Company be compelled to account for the income and profits of the La Crosse & Milwaukee, as mortgages in possession, for the whole time it has been in occupancy. The company claims that he is barred from any further proceedings by his own acts in suing out the foreclosure of 1859, which was afterward set aside and superseded by sales under prior mortgages.

**Chicago & Northeastern.**—This company has filed bonds in \$300,000, as required by the recent decree of Court, to pay the indebtedness to the Chicago & Lake Huron, as may be determined hereafter. The bond has been accepted by the trustee; the sureties on it are Wm. H. and Cornelius Vanderbilt.

Notice has been given that the company will run its local trains only to Durand, Mich., 18 miles from Flint, because two miles of road with the depot, etc., in Flint have been transferred to the Chicago & Lake Huron by order of court.

**Cincinnati, Effingham & Quincy.**—It is reported that Mr. S. C. Black, Receiver, has accepted a proposition from some Chicago contractors to complete this road from Effingham, Ill., to Switz City, Ind., some 60 miles. Part of the line is graded.

**Columbus, Chicago & Indiana Central.**—Notice is given that A. Iselin & Co., No. 48 Wall street, New York, will buy at par and accrued interest the coupons due Nov. 1, 1878, on Columbus & Indianapolis Central second-mortgage bonds, and the coupons due Feb. 1, 1879, on Toledo, Logansport & Burlington first mortgage and income bonds.

**Detroit River Tunnel.**—A dispatch from Ottawa, Can., April 6, says that Messrs. J. Tillingshast and W. K. Muir, representing the Canada Southern, have been in Ottawa to confer with the Minister of Public Works as to the proposed tunnel under the Detroit River.

The discussion of the crossing question still continues in Detroit, and a large public meeting was held last week to consider the matter. There does not seem to be much probability that anything will be done at present, unless the railroad companies should listen to the Detroit authorities and consent to take some action.

The City Council of Detroit has applied to the Legislature for leave to issue city bonds for the purpose buying Belle Isle and building a bridge across the American channel, in preparation for building a tunnel under the Canada channel.

**Georgia.**—The Atlanta *Constitution* says: "The Georgia Railroad makes a good showing under General Alexander's management for the year ending March 31, 1879. After spending \$65,000 for steel rails and \$20,000 on the freight and passenger depots in Augusta, which are permanent improvements, the net earnings over 1878 are \$67,000, and this has been made, notwithstanding a falling off in the gross earnings of \$115,000 for the year."

**Green Bay & Minnesota.**—In the United States Court at Milwaukee, April 3, a decree of foreclosure and sale was granted against this road, at the suit of the Farmers' Loan & Trust Company, Trustee. The road is 213 miles long, from Green Bay, Wis., to Marshland, with four miles of road from Onalaska to La Crosse, and its trains use the Chicago & Northwestern tracks from Marshland to Winona, Minn., and from Marshland to Onalaska. It has \$3,200,000 first and \$800,000 second-mortgage bonds. The earnings have always been light.

**Hannibal & St. Joseph.**—Notice is given that 25 of the sinking fund land-grant bonds have been drawn for redemption in accordance with the terms of the mortgage, and will be paid on presentation at the office of the Farmers' Loan & Trust Company in New York. Interest will cease June 3. The numbers drawn are: 17, 19, 69, 72, 83, 103, 145, 175, 177, 184, 207, 231, 233, 242, 316, 322, 404, 415, 422, 434, 448, 478, 503, 505 and 641.

**Hudson River Tunnel.**—This company has a bill before the New York Legislature to give it the necessary authority to build the New York end of its proposed tunnel under the Hudson from Jersey City to New York; also authority to take lands in New York City for the necessary terminus and depots. The bill is strongly opposed by owners of property in the neighborhood of the proposed terminus in New York.

**Illinois Central.**—This company's traffic report for March is as follows:

	1879.	1878.	Inc. or dec.	P. c.
In Illinois....	\$416,005.00	\$402,846.88	I. \$13,158.12	3.3
In Iowa....	124,878.00	133,562.03	D. 8,684.03	6.5

Total. \$540,883.00 \$536,408.91 I. \$4,474.09 0.8

During March, 1879, the land sales were 742.55 acres for \$4,452.55 and the cash collected on land contracts was \$6,560.93.

**Illinois Midland.**—It is reported that the Receiver of this road has made an agreement for a partial transfer of its business to the Pekin, Lincoln & Decatur, between Decatur and Peoria. The *Peoria Transcript* says:

"As we understand the arrangement, the through freight and passengers of the Midland will be sent over the Pekin, Lincoln & Decatur, while a mixed train only will be run over the Midland. In return for this favor to the Pekin, Lincoln & Decatur, the last named road will send all their southeastern and eastern freight and passengers, going beyond Decatur, over the Midland."

**Indianapolis, Bloomington & Western.**—The United States Circuit Court has ordered a conditional deed of the Main Line to be made to the purchasers, the property to revert to the possession of the Court in case of their failure to make the payments as required.

**Indianapolis, Decatur & Springfield.**—Sealed proposals will be received at the office of H. C. Moore, Chief Engineer, at Tuscola, Ill., until April 17 for the grading, masonry and bridging of the extension of this road from its present terminus at Guior, Ind., to Indianapolis, a distance

of 51 miles. Profiles, specifications, etc., can be seen at the office as above, or at the office of H. B. Hammond, President, No. 120 Broadway, New York.

**Massachusetts Central.**—Surveys have been completed for the proposed line to connect with the Troy & Greenfield road. The line located strikes that road 1½ miles west of West Deerfield. The distance from Amherst to this point is 18½ miles, and the distance by this route from Boston to the Tunnel connection is 11½ miles.

**Minnesota & Iowa.**—This company has been organized under an old charter in Minnesota to build a line from La Crescent by way of Caledonia to the Iowa line; also a line from La Crescent through the Pine Creek Valley to St. Paul, and a branch from some point on this line across the state to the Dakota line. Preliminary surveys are to be made soon.

**Mississippi & Black Rivers.**—The money required to build the 15 miles of this road from Richford, Vt., to Mansfield, P. Q., has all been subscribed except \$6,000, and the town of Mansfield has been asked to vote a bonus of that amount.

**Montreal, Portland & Boston.**—A special meeting of stockholders was held in Montreal, April 4, to vote on the lease of the road to the Southeastern Company. Action was prevented, however, by the service of an injunction restraining the company from completing the lease, and the meeting adjourned until April 23.

**New York Central & Hudson River.**—The Cunard English steamship line is about to remove from the docks it has for many years occupied in Jersey City to new docks on the New York side. It is stated that one of the inducements for the change is the securing of a close connection with this road, and that the company will put down tracks upon the new docks, so that its cars can be run immediately alongside the steamers and freight can be directly transferred. The Central freight tracks run through West street, close to the wharves, but this will be the first direct connection made with any of the steamship lines.

**New York, New Haven & Hartford.**—It is reported that this company has withdrawn from the long-standing agreement with the Boston and Albany as to rates and division of receipts on freight from Boston to Hartford and points south in Connecticut. Hereafter local rates will be charged on all business from Springfield south. The effect of this will probably be to give a large share of the Hartford business to the New York & New England.

**Norway Branch.**—The town of Norway has voted to take stock in this road, and others have taken stock enough to secure its construction. It will be about five miles long, from Norway, Me., to the Grand Trunk near Paris.

**Ohio & Mississippi.**—Receiver King has paid the loan from the National Trust Company, of New York, releasing \$400,000 Springfield Division bonds pledged as security. These bonds have several times been offered for sale by the Receiver of the Trust Company.

**Paint Creek.**—This company has been organized to build a short narrow-gauge road in Kanawha County, West Va. The stock is to be \$100,000. The corporators are James Patton, W. H. Edwards, J. N. Smith, C. C. Lewis, William A. Quarrier, Wm. E. Truslow, of West Virginia; George W. Riggs, of Washington.

**Pennsylvania.**—The Philadelphia *Times*, referring to movements in this company's stock, says: "The fact of a dividend is universally conceded, and the only debatable ground is whether it will be 2 or 3 per cent. The subjoined statement demonstrates the ability to divide the latter, and it only remains for the board of directors to decide whether it is wise and prudent to do so. If such a division is made, the ruling price of the stock is unquestionably too low. The statement is for the six months ending the 31st ult.:

Net earnings:  
October, 1878..... \$1,559,547  
November, 1878..... 1,300,250  
December, 1878..... 931,932  
January, 1879..... 1,010,531  
February, 1879..... 1,172,087  
March, 1879 (estimated)..... 1,000,000

Total net earnings..... \$7,074,247

Interest, etc., from investments and use of equipment Pennsylvania Railroad..... \$1,060,400  
Interest, etc., from investments United New Jersey..... 148,200

Total amount of interest, etc..... 1,208,600

Total net revenue..... \$8,282,847

Payments:  
Interest, rentals etc., Pennsylvania Railroad and branches..... \$2,500,000  
Interest, dividend, etc., United New Jersey..... 2,164,000  
Interest for use of equipment Philadelphia & Erie..... 96,000  
Amount of net earnings paid..... 342,000  
Payments made other companies, account deficiency..... 433,000

Total payments..... \$5,631,000

Balance to credit of income account..... \$2,651,847

Amount invested in trust fund..... \$300,000

Dividend of 3 per cent. on capital stock..... 2,066,100

Tax on dividend..... 103,305

Total..... 2,460,411

Balance to credit of profit and loss..... \$182,436

Surplus west of Pittsburgh, January..... \$204,149

Surplus west of Pittsburgh, February..... 25,846

g229,995

"Interest received and payments made are based upon 1878 business."

A survey is to be made for a cross-line from Portage, on the main line, in Cambria County, Pa., southward to Cessna, on the Bedford Division, in Bedford County.

A suit has been begun in the United States Circuit Court, in Philadelphia, against this company and the Junction Railroad Company, the object of which is to compel the Pennsylvania to allow trains of other roads to run over the Junction road. The latter was built to connect the Philadelphia, Wilmington & Baltimore with the Reading and other lines entering Philadelphia, and its stock is owned by the companies concerned. A section of its track, a little over a mile, through the West Philadelphia yards, belongs to the Pennsylvania in fee, and it is alleged in the complaint that passage over this section has been refused to trains carrying freight between the Philadelphia, Wilmington & Baltimore and the North Pennsylvania roads. The complainants in the suit are Francis S. Lathrop (Receiver of the New Jersey Central) and Lewis H. Taylor (who is connected with the Delaware & Bound Brook road), and they ask for an injunction restraining the Junction Railroad Company, its officers, servants and agents from refusing or neglecting in any manner to perform its corporate duties; that the Pennsylvania Railroad Company be enjoined from hindering or interfering with the Junction Railroad Company in transporting freight and passengers, and that in case the said Pennsylvania Railroad Company and the said Junction Railroad

Company shall refuse to furnish the necessary motive power for the transportation of the cars passing to or from the road of the orators, then they and each of them, their officers, servants, agents and every one of them be enjoined and restrained from preventing or interfering with the passage of the locomotive engines of other companies engaged in the hauling of said cars.

**Pennsylvania & Delaware.**—This road is now operated by the Delaware Western Company, which works the 18 miles from Landenberg, Pa., to Pomeroy as an extension of its own main line, and the eight miles from Landenberg to Newark as a branch. The 12 miles from Newark to Delaware City are abandoned for the present, and no trains are run.

**Pittsburgh Southern.**—This road was sold by the sheriff last week, as noted elsewhere. At a meeting of creditors and stockholders in Pittsburgh, April 7, Mr. James H. Hopkins, the purchaser, made first a proposal to the stockholders who were indorsers on the company's paper, which they were not able to accept. He then made a second proposition, that if any stockholder, indorser, creditor or other person or persons, would raise \$70,000 in cash at once, and pay the same into Mr. Hopkins' hands forthwith, he would apply it first to the payment of his bid, say \$55,000, costs and expenses, say one or two thousand dollars, and the remaining amount to payment of the labor claims. That he would then organize a new company, giving stock for the \$70,000 to be raised, and also for the amount of all claims whose holders may be willing to take it in payment. This proposition was acceptable, and efforts are being made to raise the \$70,000 required.

**Rome, Watertown & Ogdensburg.**—Even spring does not seem to bring a rest to the officers of this unfortunate road. The Oswego *Palladium* of April 5 says: "The train from Richland, due here on the Rome, Watertown & Ogdensburg road at 9:40 last evening, arrived at 11 p. m., having been delayed by snow."

**St. Louis & San Francisco.**—A bill has been introduced in Congress to repeal the land grant of this road (formerly the Atlantic & Pacific), on the ground that the company has failed to build the road in accordance with the terms of the grant. The bill provides for the restoration of the lands to market, provided that the company may retain all lands earned on road built up to July 4, 1879.

**Sandy River.**—Work is in progress on this line of 2-ft. gauge, which is to extend from Farmington, Me., northwest to Phillips, 18 miles. The intention is to build through to the Rangeley Lakes hereafter.

**Securities on the New York Stock Exchange.**—The following securities have recently been put on the regular list at the New York Stock Exchange:

Erie & Pittsburgh, \$1,998,400 stock.

Keokuk & Des Moines, \$1,524,600 preferred and \$2,600,400 common stock.

New York, Lake Erie & Western, \$25,000,000 new consolidated bonds; \$8,718,100 first consolidated mortgage funded coupon; \$8,597,400 second consolidated funded coupons.

St. Louis, Iron Mountain & Southern, \$2,500,000 Arkansas Branch first-mortgage bonds; \$7,998,000 Cairo & Fulton first-mortgage bonds; \$1,450,000 Cairo, Arkansas & Texas first-mortgage bonds; \$4,163,298 first-preferred income bonds; \$4,089,000 second-preferred income bonds.

St. Louis, Kansas City & Northern, \$9,350,000 Omaha Extension first-mortgage bonds.

**Sharpstown.**—The Sharpstown (Pa.) *Advertiser* of recent date says: "This company obtained a temporary running arrangement through the Erie & Pittsburgh yard here, on Saturday evening, and cleared the blockade on Sunday. Operations at the mines and business over the Sharpstown Railroad were resumed on Monday. The Sharpstown Railroad Company have brought a suit to establish their rights to use the crossing switches, and to require the replacement of the frog by the Pennsylvania Company. The courts will now have a chance to determine the questions at issue between the parties."

**Spartanburg & Asheville.**—A contract for completing this road from Flat Rock, N. C., to Hendersonville has been let to Col. Potts, who already has men at work. The contract provides that cars shall run to Hendersonville by June 1.

**Sussex.**—This company has contracted to ship 25,000 tons of zinc ore over its road from Franklin Furnace, N. J., to the Morris Canal at Waterloo during the coming season, for the Passaic Zinc Company. Another contract has been closed, to carry 17,000 tons of iron ore to the canal from the Franklin Iron Company's mines at Franklin Furnace and Pochuck.

**Utah Southern.**—Work has been in progress several weeks on the grading of the extension of this road from York, Utah, southward 80 miles to Chicken Creek, and track-laying has been begun. At Chicken Creek this company's road will end, and the Utah Southern Extension Company will take up the work of extending the line to Frisco, in Southern Utah.

**Western, Maryland.**—The ordinance giving the consent of the city of Baltimore (chief owner of the road) to the agreement with the second-preferred bondholders, has passed both branches of the City Council and has been approved by the Mayor. As heretofore noted, the agreement provides for funding the overdue coupons on the second-preferred bonds and also the coupon due July 1, 1879, in interest-bearing certificates, and the resumption of payments on those bonds by the company, beginning with the coupons due Jan. 1, 1880.

**Wisconsin Central.**—This road is now in possession of and worked by J. A. Stewart and E. H. Abbott, trustees for the bondholders.

**Youngstown & Connonton Valley.**—This is a reorganization of the Ohio & Toledo road, sold at Sheriff's sale near the close of last year. The road is of 3 ft. gauge, and extends from Minerva, O., to Dell Rey, 22 miles.

#### ANNUAL REPORTS.

##### St. Louis & Southeastern.

This company's lines are as follows:

	Miles.
East St. Louis, Ill., to Evansville, Ind.	160.8
O'Fallon Branch	5.9
Shawneetown Branch	41.5
Total, St. Louis Division	208.2
Kentucky Division, Henderson, Ky., to Guthrie	98.0
Tennessee Division, Guthrie to Nashville, Tenn.	47.0
Total	353.2

There are 41.48 miles of sidings on the whole road. The St. Louis and Kentucky divisions are separated by a river

transfer 11 miles long down and across the Ohio. Of the Tennessee Division, 9.8 miles, from Edgefield Junction to Nashville, are owned and used in common with the Louisville & Nashville. The road is in the hands of receivers pending suits for foreclosure of mortgage, Gen. J. H. Wilson being Receiver of the St. Louis and Tennessee and St. John Boyle of the Kentucky Division, but they are operated as one line. The latest report is for the year ending Oct. 31, 1878.

The equipment consists of 48 engines: 17 passenger, 6 combination and 7 baggage cars; 365 box, 62 stock, 654 eight-wheel coal, 132 four-wheel coal, and 28 caboose cars; 97 gravel dump cars. One passenger and one combination car were added during the year. The bonded debt is \$9,500,000, or \$26,897 per mile. Of the bonds \$8,355,000 have first liens on the St. Louis Division; \$1,000,000 are a first mortgage on the Kentucky Division, and \$5,145,000 are consolidated, or second-mortgage bonds.

The traffic of the entire line for the year was as follows:

Rev. train mileage	1877-78.	1876-77.	Inc. or Dec.	P.c.
Passenger	480,184	51,593	.....	.....
Freight	51,593	.....	.....	.....
Total	900,087	.....	.....	.....
Locomotive mileage	1,325,800	1,250,560	I. 75,240	6.0
Passenger car mileage	1,417,553	1,373,491	I. 44,092	3.2
Freight car mileage	7,680,776	6,124,307	I. 1,562,473	23.5
Passengers carried	278,075	260,538	I. 18,437	7.1
Passenger mileage	10,215,312	9,486,470	I. 758,842	8.0
Ton freight carried	602,063	673,582	D. 70,919	10.4
Tonnage mileage	39,558,528	30,212,395	I. 9,346,133	30.9

Av. train load:

Passengers, No.	21,27	.....	.....	.....
Freight, tons	76,08	.....	.....	.....

Average rate:

Per passenger per mile.	3.51 cts.	3.50 cts.	I. 0.01 cts.	0.3
Per ton per mile.	1.91	2.38	D. 0.47	10.7

Locomotive service cost 13.8 cents per mile run. Coal carried was 816,658 tons, a decrease of 15,858 tons. Of the coal 188,835 tons were from the St. Louis, and 129,823 tons on the Kentucky Division. There were 14,775 cars transferred across the Ohio during the year between Evansville and Henderson.

The earnings of the entire line for the year were as follows:

1877-78.	1876-77.	Inc. or Dec.	P.c.	
Passengers	\$358,665.90	\$330,784.76	I. \$27,881.14	8.4
Freight	754,413.87	722,050.01	I. 32,363.86	4.5
Express, mail, etc.	49,116.86	47,604.10	I. 1,512.76	3.2
Total	\$1,162,196.63	\$1,100,438.87	I. \$61,757.76	5.6
Expenses	889,638.13	846,756.85	I. 42,881.28	5.1

Net earnings..... \$272,558.50 \$253,682.02 I. \$18,876.48 7.4

Gross earn. per mile..... 3,273.79 3,099.83 I. 173.96 5.6

Net earn. per mile..... 767.77 714.60 I. 53.17 7.4

Per cent. of expenses..... 77 77 .....

The business and earnings were divided as follows:

St. Louis Div.	Kentucky Div.	Tennessee Div.	
Revenue train mileage	535,977	306,114	154,046
Passenger mileage	8,411,063	2,463,426	1,340,823
Tonnage mileage	19,067,820	14,495,082	5,095,626
Gross earnings	\$645,333	\$349,847	\$107,018
Net	168,210	61,778	42,570

Gross earnings per mile	3,073	3,570	3,553
Net	801	630	606

Per cent. of expenses	77	77	75
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On all the divisions a large amount of work was done on bridges and buildings. Track renewals on the St. Louis Division included 1,814 tons steel rails, 186 tons rerolled from rails and 93,817 ties; on the Kentucky Division, 1,129 tons steel rails, 60 tons iron rails and 33,298 ties, and on the Tennessee Division 100 tons of steel rails and 11,538 ties. Some ballasting was done.

The Receivers' condensed balance sheet is as follows:

Balance of net revenue account	.....	\$651,829.23
Receivers' certificates, Tennessee Div.	.....	\$250,000.00
Coupons of same	.....	36,966.67
Accounts, balances, etc.	.....	117,567.54

Total	.....	404,534.21
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St. Louis and Southeastern Co. debts	.....	\$1,056,363.44
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paid	.....	\$602,012.20
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Construction, improvements and equipment	.....	163,112.14
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Sundry accounts and balances	.....	22,423.09
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Available assets, cash, etc.	.....	178,816.01
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Total	.....	1,056,363.44
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The expenses were somewhat increased last year by larger purchases of material. The freight traffic increased in much larger proportion than the earnings, on account of the generally lower rates and the larger proportion of through business, which was 80 per cent. of the whole freight traffic last year, against 28 per cent. the year before.

The unfriendly relations with the Louisville & Nashville continue unchanged. An agreement has been made with the Nashville, Chattanooga & St. Louis for exchange of business to and from points south of Nashville, under which a fair amount of business has been received.

The road works under many disadvantages, among which is want of proper yard room and freight depots at Nashville, and insufficient accommodations at Evansville and East St. Louis. Some 300 more cars are also needed. The Receivers also

The earnings of the road for the year were as follows:

	1878.	1877.	Increase.	P. c.
Passengers	\$210,386.12	\$187,920.92	\$22,465.20	12.0
Freight	302,218.08	344,302.41	17,915.67	5.2
Mail, express, etc.	56,674.00	46,780.35	9,863.65	21.1
Total	\$629,278.20	\$579,003.68	\$50,274.52	8.7
Expenses and taxes	433,066.35			
Net earnings	\$196,211.85			
Gross earn. per mile	2,339.32	\$2,152.43	\$186.89	8.7
Net	729.41			
Per cent. of exp's	68.82			

The road was only worked by the company for 8½ months of 1877, though the gross earnings above are for the whole year. The expenses for the corresponding 8½ months of 1878 show a decrease from 1877 of \$24,302.95.

Charges to net earnings were as follows:

	1878.	1877.	Increase.	P. c.
Net earnings	\$196,211.85			
Extraordinary repairs to road-bed	\$69,749.01			
Steel rails	46,919.70			
Atlanta & Richmond Co. accounts	996.92			
Interest on preferred bonds	34,125.00			
Debit balance, Jan. 1, 1878	9,578.62			
		\$161,369.25		

Balance, Jan. 1, 1879. \$34,842.60

The increase in passenger business was mainly in local travel, induced by the running of a second daily train over the road in the day time. Through travel also increased, and the summer travel to points in the hill country shows a steady gain.

A number of new sidings were built and old ones lengthened. Track renewals include 37 steel frogs; four safety switches; three new steel crossings; 71,504 new ties; 1,108 tons of steel and 119 tons of iron rails. Some small buildings were put up. There is urgent need of a round-house and repair shops at Atlanta, and of a freight depot there. General Manager Foreacre recommends that the company buy its share of the Union Depot at Atlanta, for which it now pays rent, and that it join in building a union depot at Charlotte.

The chief work of the year has been on bridges. Arches were put in to strengthen 15 spans of truss bridge, 2,300 feet in all. Preparations have been made to repair 27 spans, 4,150 feet in all, and to rebuild seven spans, 1,100 feet in all. Twelve masonry culverts were built; 3,272 lineal feet of trestle-work were replaced by earth embankment, and five other trestles are under contract to be filled. There are many trestles on the line which are to be filled in as fast as possible.

The attention of the present company has thus far been directed chiefly to putting the road in good condition and remedying the defects of the slight and hastily built structures left by the builders of the road.

The new Elberton Air Line road is expected to prove a valuable feeder, and already brings much business. This company holds one-half of the stock and has made a traffic contract, by which 35 per cent. of the earnings on business coming from the Elberton road are to be received in bonds of that company, until \$150,000 are taken up. The first month after the new road was opened the gross earnings of this road on business from the new road were \$10,774, which is considered a very good beginning.

#### Pittsburgh, Cincinnati & St. Louis.

During the year 1878 this company worked the following lines:

	Miles.
Pittsburgh, Cincinnati & St. Louis owned:	
Pittsburgh, Pa., to Newark, O.	150.5
One-half of 33 miles from Newark to Columbus	16.5
Cadiz Branch	8.1

Total owned. 184.1

Charterers R. R., leased, Mansfield, Pa., to Washington. 22.8

Pittsburgh, Wheeling & Kentucky, leased. 24.2

Cincinnati & Muskingum Valley, leased, Dresden, O., to Morrow. 148.4

Little Miami, leased, Columbus to Cincinnati. 120.4

Xenia, O., to Richmond, Ind. 56.2

Xenia to Springfield. 19.3

Columbus, Chicago & Indiana Central, leased, Columbus to Indianapolis. 187.7

Bradford Junction, O., by Logansport to Chicago. 231.0

Richmond, Ind., by Logansport to State Line. 161.8

380.5

Total leased. 971.8

Total worked, including the entire 33 miles between Newark and Columbus. 1,172.4

The 33 miles from Newark to Columbus are owned and used in common with the Central Ohio, whose line is leased by the Baltimore & Ohio. The company also owns one-third interest in the St. Louis, Vandalia & Terre Haute road, which is leased to the Terre Haute & Indianapolis.

The company is controlled by the Pennsylvania Company, and its lines form the southern group or system of the Pennsylvania lines west of Pittsburgh. The full report is not yet issued, but the following statements are from advance sheets of the directors' report. The lines have been increased during the year by the leasing of the new Pittsburgh, Wheeling & Kentucky road.

The general account, condensed, is as follows:

	\$8,437,200.00
Stock (\$45.829 per mile)	\$8,437,200.00
Funded debt (\$67,882 per mile)	142,977,000.00
Deferred liabilities	1,386,808.98
Current liabilities, accounts payable, etc.	976,556.14

Total. \$23,297,655.12

The deferred assets are charges for supplies and other property received with leased lines. The bonded debt has been reduced \$11,000 during the year; it consists of \$6,222,000 consolidated first-mortgage bonds; \$2,500,000 second-mortgage bonds; \$3,000,000 Steubenville & Indiana first-mortgage, and \$775,000 Columbus & Newark Division bonds. No additions were made to cost of road.

The work, so far as given, of the main line and Cadiz Branch, 200.6 miles, was as follows:

1878. 1877. Inc. or Dec. P. c.

Passengers carried. 747,455 680,082 L. 67,373 9.0

Tons freight carried. 2,142,155 1,722,396 L. 419,769 24.4

Av. freight train load, tons. 148,12 128,03 L. 20,07 15.7

Per passenger per mile: 2.44 cts. 2.46 cts. D. 0.02 cts. 0.8

Cost. 1.88 " 1.75 " I. 0.13 " 0.13 " 7.4

Net. 0.56 " 0.71 " D. 0.15 " 21.1

Per ton per mile: 0.79 " 0.63 " D. 0.14 " 15.1

Cost. 0.50 " 0.64 " D. 0.14 " 21.9

Net. 0.28 " 0.20 " D. 0.15 " 21.1

Increase in passengers was mainly in local business, causing a decrease in mileage. Both through and local freights show a large gain. The decrease in the average receipt per ton per mile was large, but was met by a decrease in

cost, due to the excellent condition of road and equipment and the heavier train-loads.

The earnings of this line for the year were as follows:

1878. 1877. Inc. or Dec. P. c.

Freight. \$2,270,835.88 \$2,191,781.88 L. \$70,054.00 3.6

Passengers. 701,007.22 704,602.88 D. 2,965.66 0.4

Express. 54,678.28 63,044.61 D. 8,366.33 13.3

Mails. 130,070.32 126,779.75 L. 3,890.57 3.1

Rents, etc. 18,578.87 11,753.34 L. 6,825.53 57.8

Total. \$3,170,370.57 \$3,097,962.46 L. \$78,408.11 2.5

Expenses. 1,989,607.04 2,028,913.25 D. 33,306.21 1.6

Net earn. \$1,180,763.53 \$1,075,049.21 L. \$111,714.32 10.4

Gross earn. per mile... 15,834.35 15,443.48 L. 390.87 2.5

Net earnings per mile... 5,916.07 5,359.17 L. 556.90 10.4

Per cent. of expenses... 62.64 65.30 D. 0.66 1.0

The results of the year, as expressed in the income and profit and loss accounts, were as follows:

Net earnings. \$1,180,763.53

Rent received from hire of equipment. 21,768.97

Inter. st received from investments. 3,085.34

Total. \$1,211,617.84

Rent of Monongahela Extension. \$37,500

Interest on bonds. 665,790

Interest on Little Miami securities, credited. 78,444

Interest on car-trust cars. 53,500

Surplus on P. C. & St. L. proper. \$371,383.84

Loss on Little Miami lease. \$363,250.72

Loss on Cin. & Mus. Valley lease. 82,689.98

Proportion of loss on St. Louis, Vandalia & Terre Haute. 65,200.35

Debit balance to profit and loss. \$139,757.27

Columbus, Chi. & Ind. Central, old accounts. 6,527.85

Debit balance, Dec. 31, 1877. 329,177.78

Total. \$475,462.83

George B. Roberts, Trustee, under agreement of Oct. 1, 1875. \$3,195

Bonds payable to Pennsylvania Company for advances, surrendered without charge. 180,400

Debit balance, Dec. 31, 1877. \$291,867.83

The net loss was greater by \$7,972.57 than in 1877; it was met by advances made by the Pennsylvania Company.

The very disastrous freshets in September and the collision at Mingo in August reduced the net earnings.

Expenditures on these accounts were \$81,770.76.

Eight passenger, 12 freight and 10 caboose cars were rebuilt. The 1,000 car-trust cars have done good service and reduced the mileage paid on freight cars. There were 3,380 tons steel rails, and 122,299 new ties laid; 5 miles were ballasted with gravel and 12 with stone or cinder. The main track from Pittsburgh to Columbus is now all steel. Three bridges were replaced by iron and one by a Howe truss.

The report says: "Under the arrangement referred to in the last annual report, by which the holders of the consolidated mortgage bonds of your company were given the option of exchanging them for registered bonds secured by the same mortgage, there had been so exchanged to Dec. 31, 1878, \$1,900,000 of those securities. A like privilege was granted to the holders of the so-called Columbus & Newark Division bonds, and up to the present time \$297,000 of those bonds have also been exchanged for the consolidated mortgage bonds." \*

The reports of the Comptroller and General Manager are also submitted herewith. From these and the data herein contained it will appear that in order to obtain the best results from your property, it will be necessary to continue the policy already pursued, of improving the motive power and equipment, supplying additional shops and machinery for the repair thereof, and replacing iron with steel rails.

"The board takes this opportunity of expressing its acknowledgments to the officers and employees generally for the faithful and efficient service rendered by them, to which the favorable results attained are due."

#### LEASED LINES.

The traffic, so far as given by this part of the report, was as follows:

	Cincinnati & Mus. Valley	Col. Chic. & Ind. Central.
Passengers carried.	126,718	850,950
Per cent. increase or decrease.	J. 11.3	D. 8.8
Tons freight carried.	110,250 255,928	624,504 1,791,981
Per cent. inc. or dec.	L. 12.9	I. 6.8 L. 16.5
Per passenger per mile:		
Receipt. 3,250 cts. 2,600 cts. 2,250 cts. 2,400 cts.		
Cost. 1,850 " 3,920 " 2,280 " 2,440 "		
Net. 1,400 " 1,230 " 0,030 " 0,050		
Per ton per mile:		
Receipt. 3,870 " 1,610 " 1,260 " 0,780 "		
Cost. 1,800 " 1,260 " 1,000 " 0,730 "		
Net. 2,070 " 0,350 " 0,260 " 0,050		
Inc. or dec. in passenger rate. 1,0,080 " 1,0,020 " 1,0,040 " 1,0,040 "		
Inc. or dec. in ton rate. 1,0,160 " 1,0,100 " 1,0,200 " 1,0,120 "		

\* Loss.

All the lines show a gain in freight traffic, but on all it was accompanied by a decrease in the average freight rate.

The earnings of the leased lines were as follows:

1878. 1877. Inc. or Dec. P. c.

Charters. 22.8 148.4 195.9 580.5

Mileage of road. 833,189 \$228,706 \$630,500 \$2,379,691

Passengers. 46,361 45,604 436,291 709,645

Mails, etc. 4,937 15,007 147,831 254,359

Total. \$84,487 \$340,397 \$1,223,601 \$3,433,665

Expenses. 41,800 318,098 948,514 3,022,151

Net earnings. \$42,5

were maintained, although through rates were lower than ever. It has not been possible to work the road economically on account of its steep grades. The Receiver believes that the grades between Indianapolis and Urbana could be reduced at a cost of about \$100,000, so that an engine could take twice as many cars as at present. West of Urbana, the heavy grades are at two points, near Pekin and Bloomington, where helping engines can be advantageously employed, at a less yearly expense than the interest on the cost of changing the line and reducing the grades. On the Extension the grades are few and light.

The Receiver's assets and liabilities are as follows:

Liabilities:	
Unpaid vouchers and pay-rolls.	\$137,883.31
Certificates.	189,000.00
Illinois tax claims.	13,155.75
Rogers Locomotive & Machine Works.	164,801.45
Oliver Adams contract for cars.	138,538.02
Total.	\$643,379.13
Assets, cash and receivables.	143,688.25
Excess of liabilities.	\$499,690.88

The Oliver Adams contract runs with the property, and is not properly a liability of the Receiver. There are also liabilities of the company, prior to the receivership, amounting to \$608,178.01, of which \$412,140 are for pay-rolls and vouchers; \$105,480 for car rentals, and \$90,558.01 for Illinois taxes of 1873. The excess of Receiver's liabilities was reduced \$42,374.45 during the year.

A condensed statement of the four years of the receivership is as follows:

	1878.	1877.	Inc.	P.C.
Passengers.	\$232,861	\$228,067	I.	24,734
Freight.	345,482	407,788	D.	62,300
Express, mail, etc.	69,773	49,519	I.	20,254
Total.	\$648,116	\$685,374	D.	54,258
Expenses.	410,451	382,547	I.	27,904
Net earnings.	\$237,665	\$302,827	D.	65,162
Gross earnings per mile.	3.241	3.427	D.	1.86
Net per cent. of expenses.	1.188	1.514	D.	32.21
Per cent. of expenses.	63.34	55.81	I.	7.53
13.5				

During the four years 6,780 tons rerolled iron, 3,824 tons new iron and 1,959 tons steel rails and 490,838 ties have been laid; nearly all the equipment rebuilt, bridges renewed and new buildings erected. In short, the road, which was in a wretched condition, has been substantially rebuilt in a permanent manner.

#### Oregon & California.

This company owns a line from Portland, Oregon, southward to Roseburg, 200 miles. The following statement of earnings is made for the year ending Dec. 31:

	1878.	1877.	Inc.	P.C.
Passengers.	\$232,861	\$228,067	I.	24,734
Freight.	345,482	407,788	D.	62,300
Express, mail, etc.	69,773	49,519	I.	20,254
Total.	\$648,116	\$685,374	D.	54,258
Expenses.	410,451	382,547	I.	27,904
Net earnings.	\$237,665	\$302,827	D.	65,162
Gross earnings per mile.	3.241	3.427	D.	1.86
Net per cent. of expenses.	1.188	1.514	D.	32.21
Per cent. of expenses.	63.34	55.81	I.	7.53
13.5				

The funded debt is \$10,950,000; current accounts and balances, \$797,141. The net earnings last year were 2.17 per cent. on the funded debt.

#### Indianapolis & St. Louis.

This company owns a line from Indianapolis, Ind., to Terre Haute, 72 miles, and it leases the main line of the St. Louis, Alton & Terre Haute road, from Terre Haute to East St. Louis, 191 miles, and the Alton Branch, 4 miles, making 195 miles leased and 267 worked. The following brief statements have been published for the year ending Dec. 31, 1878.

The traffic of the year was as follows:

	1878.	1877.	Inc.	P.C.
Passenger.	72,024	72,024		
St. Louis Division.	200,941	200,941		
Total.	272,965	234,063	38,872	
Tons freight carried:				
Indianapolis Division.	431,891			
St. Louis Division.	425,448			
Total.	857,339			

The total tonnage reported for both divisions in 1877 was 538,759. Some of the tonnage given above for 1878 must have been counted on both divisions. The earnings for the year were as follows:

	Gross earn.	Expenses.	Net earn.
Indianapolis Div.	\$418,045.18	\$325,068.63	\$93,876.35
St. Louis Div.	928,301.35	708,273.92	220,027.43
Total.	\$1,347,346.53	\$1,033,342.75	\$113,903.78
1877.	1,385,874.95	1,064,060.90	321,205.05
Decrease.	36,082.42	31,327.15	7,301.27
Per cent. of decrease.	2.9	3.0	2.3

The earnings per mile, etc., for the year were as follows:

	Indianapolis	St. Louis	Total
Gross earnings per mile.	\$5,818.68	\$4,760.52	\$5,045.87
Net per cent. of expenses.	1,303.84	1,128.35	1,175.67
Percent of expenses.	77.60	76.30	76.60

The minimum rental of the leased line is \$450,000 a year. Default was made on this rental last year, however, and suits are now pending to recover against this company and the guarantors of the lease. Pending these suits, the net earnings of the leased line are paid into Court.

#### Pittsburgh, Titusville & Buffalo.

This company owns a line from Irvineton, Pa., southwest to Oil City and thence north to Corry, 95 miles; a branch from Titusville to Union, 25 miles, and the Cherry Run Branch, 3 miles, making 128 miles in all. The following brief statements are made for the year ending Dec. 31:

The earnings for the year were as follows:

	1878.	1877.	Inc.	P.C.
Passenger.	\$168,784	\$174,064	D.	55,300
Freight.	331,428	494,135	D.	102,697
Other sources.	26,490	18,874	I.	7,625
Total.	\$526,701	\$687,073	D.	100,372
Expenses.	342,139	427,909	D.	85,770
Net earnings.	\$184,562	\$250,144	D.	74,602
Gross earn. per mile.	4.282	5.586	D.	1.304
Net per cent. of expenses.	1.501	2.107	D.	.606
Per cent. of expenses.	64.96	62.28	I.	2.68

The bonded debt consists of \$3,735,000 mortgage bonds of different classes, all 7 per cent., and \$315,000 income bonds, 6 per cent. The interest charge on the mortgage bonds is \$261,450, or \$76,888 more than the net earnings last year. There is also a floating debt of \$75,022.

The earnings of the road have declined steadily for several years with the transfer of the centres of oil production to other regions.

#### LOCOMOTIVE RETURNS, DECEMBER AND YEAR 1878.

Master Mechanics of all American railroads are invited to send us their monthly returns for this table.

NAME OF ROAD.	MILEAGE.	MILES RUN TO	COST PER MILE IN CENTS FOR						AVERAGE COST OF						
			Repairs.	Fuel.	Repairs.	Stores.	Engines, firemen and wipers.	Coal per ton.							
Allegheny Val., River Div.*	139	38	84,589	2,226	32,80	25.24	18.69	1.102	5.16	3.73	0.45	6.30	15.66	\$	\$
Low Grade Div.*	120	18	33,004	1,839	27,37	20.67	19.70	0.710	2.66	3.93	0.57	6.08	13.24		
Atlantic & Great Western, 1st & 2d Divs.	228	83	234,607	2,827	32,49	18.71	14.40	3.42	5.09	0.46	0.68	5.78	16.33	1.85	2.84
Mahoning Div.	197	50	165,236	3,305	28,45	27.51	14.30	4.23	6.01	0.30	0.50	5.28	16.47	1.62	2.84
Atlantic & Gulf.	85	53	85,212	1,608	37,42	23.20	14.80	3.28	4.81	0.37	0.63	5.67	11.70	1.68	2.84
Camden & Atlantic.	343	22	59,614	2,700	45.22	21.78		3.80	3.86	0.27		7.17	15.12		1.74
Cen. Pac., Western Div.†	67	10	18,307	1,831	53.30	13.00	12.50	5.63	7.14	0.31		5.30	18.70	3.81	
Northern & San Pablo & T.†	128	30	60,486	2,316	43.80	14.07		4.60	13.37	0.55	0.43	8.12	27.07	5.75	5.75
Visalia Div.†	157	11	26,025	2,366	45.47	16.05		4.15	15.31	0.52	0.42	7.22	27.64	5.75	5.75
Tulare Div.†	171	10	24,411	2,441	37.38	13.32		5.35	15.58	0.60	0.51	7.51	20.55	5.75	5.75
Los Angeles, San Diego, Yuma & Wilmington Divs.†	413	22	66,221	2,879	51.54	13.29		5.98	11.38	0.60	0.23	6.94	25.13	5.75	5.75
California Pacific Div.†	178	13	32,064	2,466	39.55	18.53		2.22	14.98	0.48	7.11	25.58	5.75	5.75	
Stockton & Copperopolis†	49	3	4,400	1,487	40.04	13.27		1.56	15.63	0.58	0.82	7.43	26.02	5.75	5.75
Sacramento Div.†	120	35	80,238	2,293	24.86	14.95		9.91	23.12	0.54	0.36	9.32	43.25	5.75	5.75
Oregon Div.†	152	7	20,200	2,886	35.26	10.25	20.06	7.51	19.07	0.43	0.19	8.62	35.85	5.75	5.75
Truckee Div.†	205	27	72,624	2,600	34.39	20.06	16.46	3.03	18.86	0.46	0.35	8.20	30.90	5.75	5.75
Humboldt Div.†	200	20	57,286	2,864	40.08	20.34		7.78	14.58	0.40					